ONTRACTORS and ENGINEERS

MAGAZINE OF MODERN CONSTRUCTION

JULY 1961

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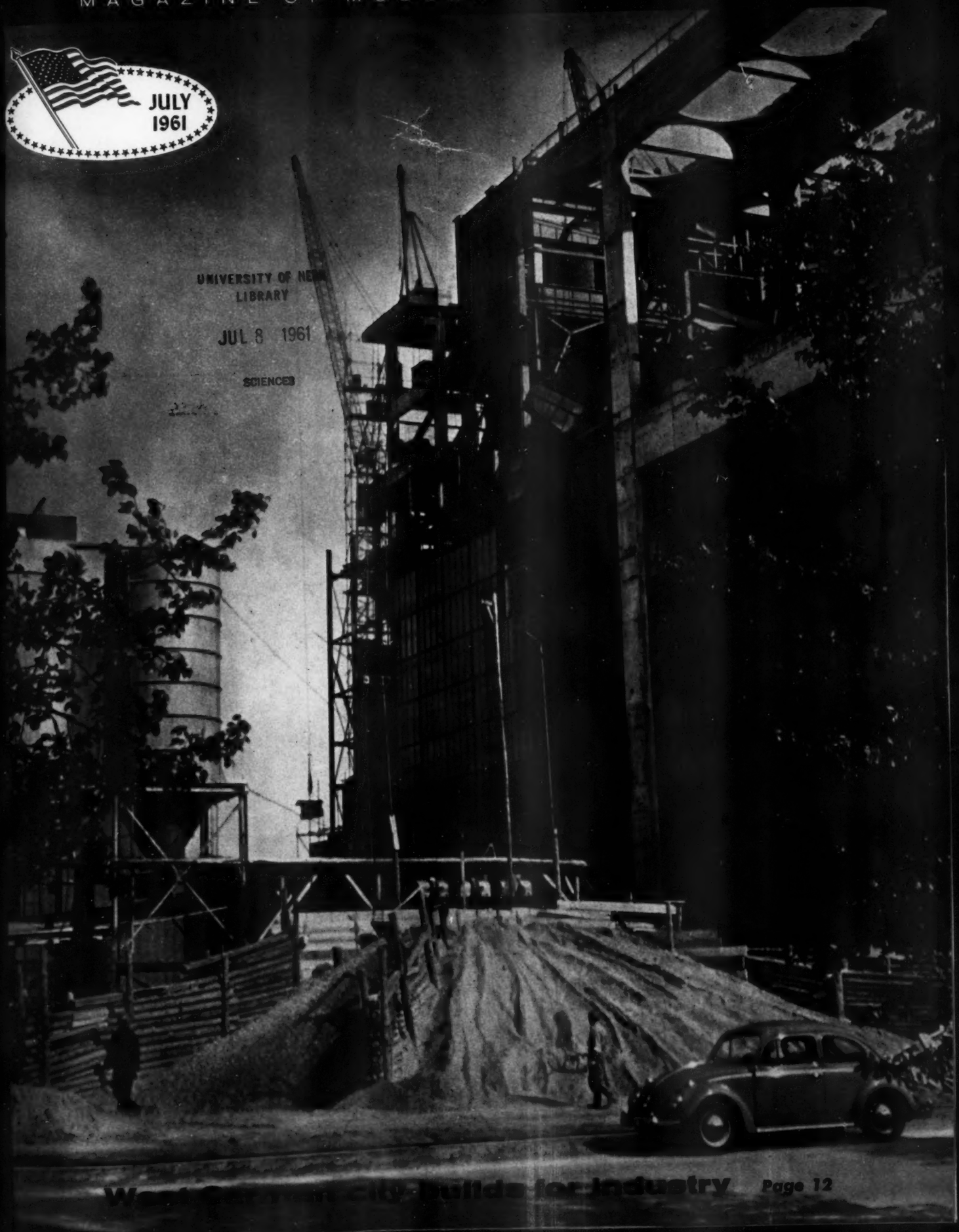

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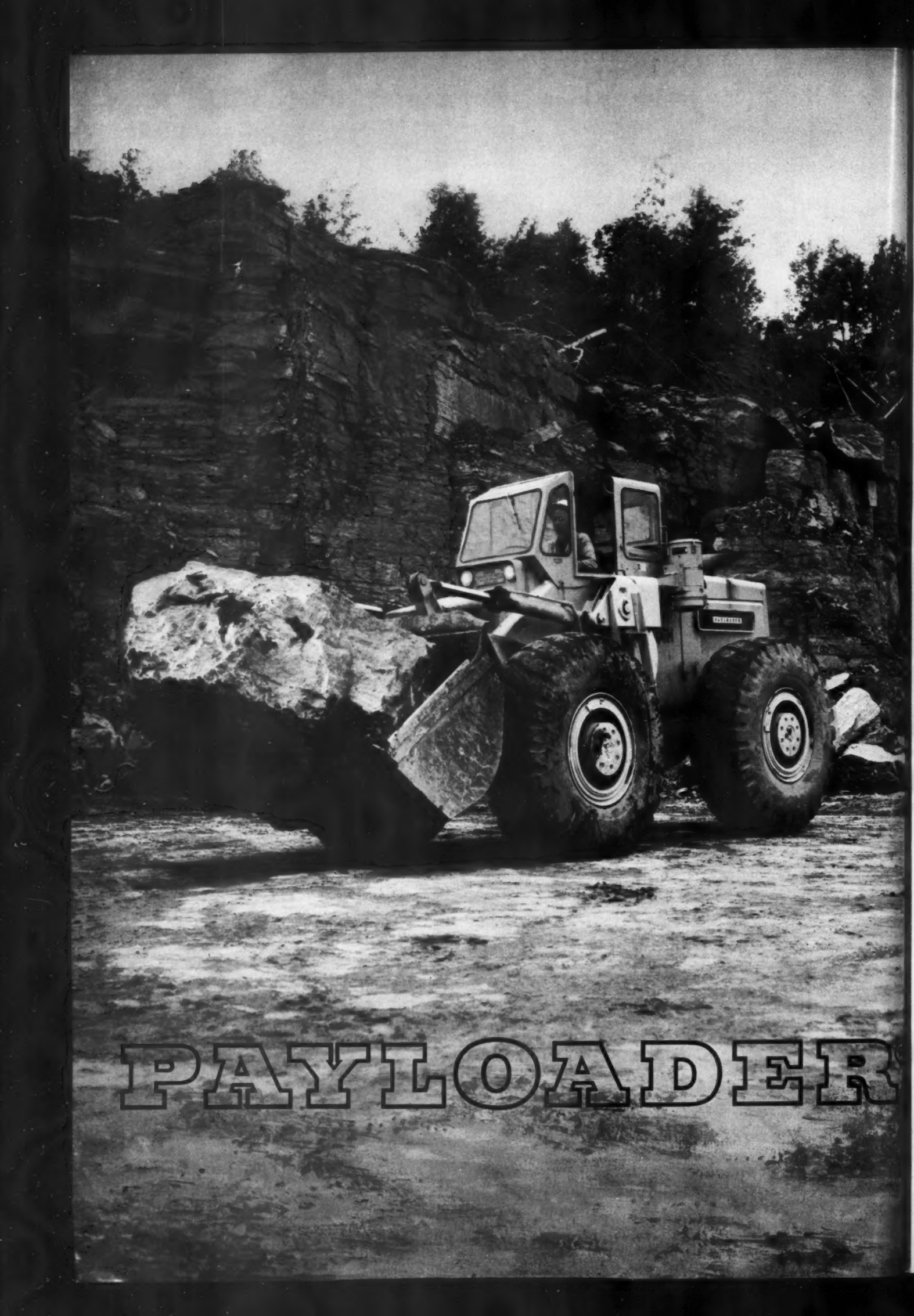
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The better engineering and superior performance of the H-90B make it

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by both owners and operators

"nearly doubles production"

Operator says, "We've been PAYLOADER users for ten years and have 10 now. The H-90B nearly doubles load-out production over the regular H-90. This is made possible by the additional engine power, faster all-around digging and no lazy periods in the loading cycle. The air brakes are much easier on the operator and the larger tires give better load-carry stability."

"this machine is indispensable"

Superintendent says, "This machine is indispensable – handles sand and other materials at lowest possible cost and is able to work over pavements, gutters and sidewalks with full loads. I'd hate to tackle this work without it."

"it's a pleasure to run"

Operator says, "It's a pleasure to run this compared to the ----- we have. Best front-end loader I have been on and I've been running loaders, dozers and cranes since 1936. It operates much easier – a wonderful machine."

"it's very dependable"

Owner says, "This is the third PAYLOADER we've owned and we think it is one of the best front-end loaders made. It works fast in loading, which is essential in our work. It's very dependable – and it has to be to keep our fleet of trucks busy. We can't afford downtime."

"greater speed and safety"

Operator says, "One of the most important features of the H-90B for our use is its ability to travel with greater speed and safety from job to job. It also gives greater production and safety on the job."

"pry-out action gets bigger loads"

Owner says, "Our Model H-70 and H-90B PAYLOADER units are doing a very efficient job. The H-90B offers very good vision of work area and has engine power to spare. The bucket pry-out action gets bigger loads with minimum machine effort and the torque-proportioning differentials practically eliminate wheel spin. This saves tire wear and speeds up the loading cycle."

"heavier constructed for hard use"

Owner says, "Our old H-90 showed a longer trouble-free life under steady, tough work conditions than other equipment. Our new H-90B is even heavier constructed for hard use, and with its bigger engine, plus a lot of work-increasing features, should help cut our costs to record low levels."

"powered for top performance"

Vice President says, "We have now used our H-90B PAYLOADER for five months and experienced very efficient load-out performance. This machine is powered for top performance without overloading the engine. It also has a very good brake system and is economical on fuel."

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For more facts, use coupon or Request Card at page 18 and circle No. 251

CONTRACTORS and ENGINEERS

MAGAZINE OF MODERN CONSTRUCTION

July 1961

A Buttenheim Publication

Building boom in Volkswagen city

12 Work on expanded plant facilities and on housing for workers in Wolfsburg, West Germany, forms the core of a construction boom that is resulting in a new model city.

Big travelers for big forming job

32 Bridge-sized travelers and special steel form supports are stealing the construction show at an air terminal with cable-supported roof hung from 32 concrete main frames.

Deep-water channel to inland port

64 A 30-inch hydraulic dredge is chewing its way through the delta country between San Francisco and Sacramento to a 70-acre harbor, 80 miles inland.

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COVER:
Among several buildings under construction at the Volkswagen Works in Wolfsburg, West Germany, is this lacquer and assembly-line plant. Contractor Dyckerhoff & Widmann uses Liebherr and Peine tower cranes for handling materials and supplies; also for placing concrete. The cranes move on specially laid tracks paralleling the south side of the plant. Materials are stacked at specified locations and lifted into place according to work schedules.
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Associated Publications

The American City | OVERVIEW | MART | Municipal Index | AMERICAN SCHOOL AND UNIVERSITY

Accepted as Controlled Circulation Publication at Lancaster, Pa. Vol. 58, No. 7. $5 a year, $1 a copy in the United States and Canada. $8 a year in other countries. Issued monthly.

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Five-Year Summary of Educational Construction

	1956	1957	1958	1959	1960
Total Number of Buildings	10,075	9,689	11,299	9,301	8,930
Public School	8,211	7,841	9,190	7,379	7,045
Private & Parochial	546	721	625	397	481
College & University	1,012	919	1,237	1,217	1,179
Junior College	306	208	247	308	225
Total Expenditures	$3,214,374,596	$3,420,509,334	$3,950,147,812	$3,572,226,922	$3,624,942,411
Public School	2,547,572,920	2,645,310,685	3,052,118,294	2,619,966,173	2,591,878,767
Private & Parochial	104,444,783	169,426,998	122,497,424	63,409,391	95,380,768
College & University	501,754,331	555,779,874	718,155,613	799,834,872	865,979,869
Junior College	60,602,562	49,991,777	57,376,481	89,016,486	71,703,007

Source: *OVERVIEW Magazine.*

Business Comment

Schools ahead

With federal aid to education given an even chance of enactment in the current session of Congress, educational construction is emerging as the newest growth sector of the construction industry throughout the nation.

The Senate has passed a $2.5 billion bill giving $850 million in federal grants to the states in each of the next three years. A House bill—still in doubt at this writing—would grant about as much (just $66 million less) in that time.

Either bill, or any likely compromise, would add an estimated 40,000 to 70,000 classrooms to the school construction market over the next three years, depending on how much of the grants the various states will use for increasing teachers' salaries or other uses.

Over the last three years, the nation has built 30,000 educational buildings at a cost of over $11 billion.

In 1960, expenditures were over $3.6 billion, which built 8,930 school and college buildings. This was slightly up from the 1959 dollar volume, though the number of buildings was down.

Here is a detailed look at the specific sources of demand for 1960 educational construction.

Public schools accounted for 79 per cent of the total number of new buildings, though they spent only 72 per cent of the $3.6 billion. College buildings, on the other hand, comprised only 13 per cent of the buildings, but 25 per cent of the cost. Private and parochial schools: 5 per cent and 2 per cent, respectively.

Within public-school construction, elementary schools continued to head the list as they have since the postwar boom in school construction began. Over 4,000 elementary schools were built at a cost of just over $1 billion. Only half as many secondary schools were built, but at a higher total—$1.4 billion.

These and the following findings are taken from the 12th annual school-building survey conducted by *Overview*, a magazine for educators.

There were some sharp regional contrasts:

The South lagged in the number of buildings (25 per cent of total) and expenditures (17 per cent of total), as against its children of school age (30 per cent).

The West led in the number of buildings (24 per cent) and expenditures (22 per cent), as against its number of school-age children (15 per cent).

The eleven highest-ranking states last year, in both buildings and dollars were:

	New Buildings	Cost
California	899	$349,341,927
New York	382	303,901,066
Pennsylvania	418	281,398,206
Michigan	411	195,663,224
Illinois	471	182,046,886
Ohio	386	170,371,167
Texas	609	161,886,827
Indiana	323	150,422,309
Washington	323	117,738,092
Massachusetts	202	109,970,696
New Jersey	192	103,852,009

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Editorial

The vanishing apprentice

Last month's C&E editorial presented some thoughts to contractors on the development of management manpower. Let us not overlook, however, the development of mechanics and skilled laborers, without which the best managerial brains could readily be frustrated in carrying on the business of construction. The importance of training young men in the working skills of the building trades is sharply defined when we realize that 60 per cent of all apprentices in the United States are learning their crafts for use in the construction industry.

But not enough apprentices are entering the construction field, and the resultant shortage of skilled craftsmen is a cause of concern to contractors, building trades unions, and government officials. The Building Trades Employers Association of Westchester and Putnam counties in New York State conducted an investigation type of study to find out why the youth of this particular area, and the United States in general, is not interested in learning the building-trades skills. The association is composed of employers of the construction crafts, and one of its functions is to negotiate labor agreements with the unions. In the words of a spokesman for the investigating committee of the association:

"We found that the crux of the problem is that there has been a change in the psychology of young men. For one thing, many of them have no personal interest for any type of work that must be performed with their hands. More importantly, they reject the thought of investing four years in training at a low rate of pay, even though the skill they will acquire guarantees them increasingly higher pay as their experience increases. Third, they want to make big money immediately and think they are entitled to it, even though they have no training for anything. And finally, an increasing number are marrying at younger and younger ages. With a bride to support, they feel even more strongly about the four-year apprentice training requirement, and about the necessity of going after the top dollar, regardless of where they find it. They overlook, or refuse to consider, the fact that the highest paying jobs for the uneducated and unskilled usually are in lines in which little opportunity exists for increasing one's income, regardless of seniority or experience."

However specious the reasoning on the part of a potential prospect for an apprenticeship, it is difficult to attract to construction such young men who have no interest in higher education or no possibility of financing their way through college. Employers associations and unions have got together to make the wage scale attractive. In Chicago, for instance, a bricklayer apprentice can advance in three years from $2.20 to $4.18 per hour, while in a similar period a cement-mason apprentice can increase his earnings from $3.26 to $3.86 per hour. A carpenter apprentice can expect $2.05 per hour in his first year, a rate that will rise to $3.35 in his fourth year.

Despite the earnings, plus benefits, that may be realized in the building trades, a recent national survey indicates that by 1970 this country will have a shortage of two million skilled construction workers. No longer [illegible] sons following their fathers in [illegible] building trades. Parents, understandably, now push their sons for a [illegible] lege education to fit them for a [illegible] genteel career. According to observations made by the U. S. Departme[illegible] of Labor in the New York City ar[illegible] the old and respected pride of craf[illegible] manship has deteriorated because [illegible] the lack of apprentices. Newcome[illegible] are now learning their trade ha[illegible] hazardly on the job and not throu[illegible] the painstaking training that t[illegible] bigger unions formerly rigorously [illegible] forced.

The BTEA of Westchester and P[illegible] nam counties is facing up to the at[illegible] ation in its area by cooperating wi[illegible] state and federal labor departments, the unions, and the adult-educati[illegible] departments of various schools [illegible] sponsoring training courses for uni[illegible] apprentices. The association provid[illegible] funds, the union provides skille[illegible] craftsmen as instructors, and th[illegible] school provides classrooms. Trainin[illegible] centers in high schools of the citi[illegible] offer courses in bricklaying, carpen[illegible] try, electricity, plumbing, weldin[illegible] sheet metal, and steam fitting.

Apprentices, 18 years and up, a[illegible] tend classes four hours a week [illegible] night, and at least 144 hours per yea[illegible] for four years, all on their own time. On their daytime job, working wi[illegible] an experienced older man, they a[illegible] quire the basic skill in their trad[illegible] Thus through training and exper[illegible]

Surveying Washington..

by E. E. Halmos, Jr.

Highway investigations were getting louder—but not funnier—last month, as Congressional tempers heated up with Washington's delayed summer weather. Members of the special House public-works subcommittee seemed to be spending more time accusing each other of politically inspired shenanigans than they were in looking into skulduggery among contractors, engineers, and state employees.

Disagreements on road scandals among Republicans and Democrats on the subcommittee came into the open with charges on the House floor by Rep. Gordon Scherer (R., Ohio) and William C. Cramer (R., Fla.) that Chairman John Blatnik (D., Mich.) and his Democratic majority were hiding records from minority members. They were said to be deliberately delaying investigations into charges of scandal in Massachusetts —the home state of both the President and House Majority Leader McCormack. Blatnik hotly denied the charges, calling statements by Scherer and Cramer "absolute lies." He admitted that records weren't being made available to the minority, but said that was within House rules, and he argued that the committee's staff is small and can't investigate both New Mexico (where a check has been under way for months) and Massachusetts.

More heat on highways was added June 12, when the subcommittee opened hearings on the New Mexico highway program. Questioning brought out the charge that at least one contractor had enough political power in the state capital so that he could—and did—have state employees transferred to other jobs when they began to get "annoying" to his operations. Cramer raised the point that the committee investigators had made no attempt to find out the source of the contractor's power, no attempt to pin the blame on the state government. No attempt had even been made, Cramer charged in a series of hot exchanges, to obtain state-required records of political contributions, to see who had received campaign aid from the contractor. In a statement to C&E Cramer said that he has called on other minority members to see if they can start an investigation of their own, in an effort to force Blatnik into investigating Massachusetts and other places. "We want to get to the bottom of this," Cramer told C&E, "as much as anyone. We want to expose any instances where the taxpayers have been robbed. But we insist that the investigation conducted by the committee so far hasn't gone far enough—it has simply showed up wrongdoing, but hasn't dug into the vital point of where the wrongdoing started, and who is really to blame." An independent minority investigation would have at least one precedent: During the term of President Roosevelt, a Republican "fact finding" committee checked into alleged scandals in agricultural programs and forced action by the majority by public disclosures.

Road investigations in Oklahoma were the subject of another committee report that shows areas of disagreement. The majority blamed Bureau of Public Roads, primarily, for lack of conformity with standards on a stretch of road near Tulsa and made other charges. The minority blamed state officials and employees (who were employed under a Democratic state administration).

Net result of this fight on roads would seem to be a clouding of any valid disclosures by the investigations, and it will certainly increase t[illegible] pressure on contractors and st[illegible] officials engaged in highway wor[illegible] One evidence of this was the disclo[illegible] sure, in hearings on appropriation[illegible] that BPR wants to add 202 new fi[illegible] engineers, auditors, investigator[illegible] and right-of-way appraisers to [illegible] investigating staff.

Much legislation still hangs fi[illegible] In fact, out of some 10,732 bills i[illegible] troduced, Congress, as of last mont[illegible] had enacted only 45. This was ca[illegible] ing some anguish among congres[illegible] men, who were beginning to compla[illegible] that, in the concentration on A[illegible] ministration "must" measures, a l[illegible] of smaller but locally importa[illegible] matters were getting short shrift.

Costs of two Washington projec[illegible] were putting an uncomfortable spo[illegible] light on construction men in ear[illegible] June. Federal Aviation Agency, loud[illegible] blaming the previous Administrati[illegible] for miscalculation, asked an ad[illegible] tional $90 million for completion [illegible] the new Dulles International Airpo[illegible] 28 miles west of Washington; a[illegible] Congress found that the huge, "ne[illegible] new" House office building, now und[illegible] construction on Capitol Hill, wo[illegible] cost over $100 million and that co[illegible] pletion would be delayed at least [illegible] year beyond the target date of 19[illegible] Both structures have been delay[illegible] by a very bad construction win[illegible] FAA also said that failure of t[illegible] previous Administration to provi[illegible] for hangars at Dulles (in favor [illegible] having air lines build their own) a[illegible]

ence, the apprentice may advance himself to become a top artisan and even beyond that to a supervisory position.

Despite such opportunities, the response to these classes has not been encouraging. The number of applicants per class has dwindled from 20 to 12, the minimum required to conduct a course. Total enrollment has fallen so badly that the course in carpentry in one city had to be dropped.

Why should this be? Many young men who would like to become apprentices report that some unions are practically closed shops, and that they cannot get into them without "pull," a connection, or by paying some form of tribute. Others claim that certain locals unofficially restrict membership to those of a particular ethnic background or national derivation.

Here is a problem with which the construction industry must come to grips. It is not a problem of equipment or materials; no technological methods are concerned. The problem involves human relations, ranging from a choice of vocation to the economic welfare of the individual and his family. Many factors must be considered, and no easy solution is apparent. All segments of the construction industry must get together and find a way to provide the skilled workers that are necessary to serve our construction program in years to come.

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other errors were responsible for the huge jump in cost. Not mentioned was the addition, by Congress, of a 28-mile sewer line and other features to the original airport plan.

A strong upturn in construction is in evidence, as the year enters its second half. Probably most encouraging were reports of private companies to the Security and Exchange Commission, which showed (during May) plans for construction during 1961 and early 1962 aggregating more than $1.5 billion. More than two-thirds of that amount was accounted for in plans announced by electric and gas utility companies for new pipelines, power installations, and extensions and improvements of facilities. But more than $76 million worth of plans was also recorded by other companies.

A real boost for exports could go to machinery manufacturers out of recent legislation introduced to attract private financing to insure exporters against failure of foreign purchasers to pay their debts. The bill, introduced by Representatives Abraham Multer (D., N. Y.) and W. B. Widnall (R., N. J.), would establish—with private capital—a federally chartered American Export Credits Guaranty Corp., which could provide insurance against normal commercial failure of foreign buyers to pay and, with the federal government, against losses arising from foreign government action. Existence of such an organization would put U. S. manufacturers on a more equal footing with foreign producers.

Contractors on foreign work are also taking steps to improve their competitive position abroad. First move was formation of a Construction Industry International Committee, whose first action was testimony in early June before the House Ways and Means Committee, to protest the Kennedy proposal that would abolish tax deferrals on overseas earnings. Contractors say the deferral is one of the few aids received from the U. S.

Construction materials seem slated for attention by the Department of Justice in its current series of attacks on bid and price rigging. The department has been paying a lot of attention lately to the practice of price leadership, particularly in the steel industry.

A new booklet, "Doing Business with the Federal Government," is available free of charge from General Services Administration offices, the Small Business Administration, and the Department of Commerce field offices. The 58-page pamphlet discusses procurement regulations with government-wide application, and gives details on military, GSA, and individual agency policies.

Another bookshelf item is the 371-page revision of the 1957 edition of "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects," available for $2.25 from the U. S. Government Printing Office, Washington 25, D. C. The publication sets pavement thickness and tolerances and permits use of radiograph methods for checking welds in steel structures.

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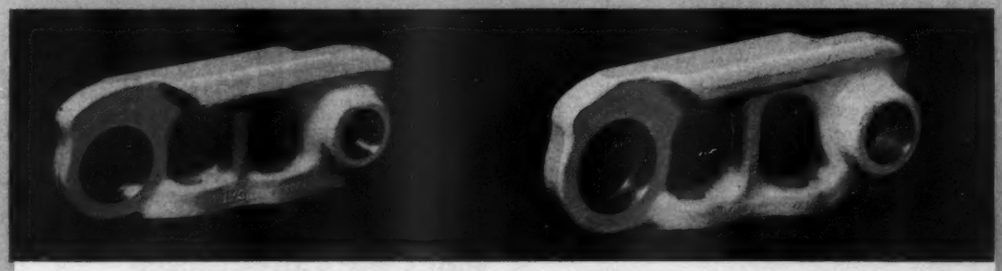

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- "Hi-Electro" hardened rails give outstanding wear life.
- Rail wear cases are twice as deep as other brands.
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- 12% thicker rails eliminate peening, rebuilding distortion.
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- Uniform, wear-resistant rail cases deeper than other makes.

These new track links are made from special steel, carefully pretested *before* manufacture. They're forged, machined and heat treated to develop maximum strength and toughness. A non-peenable wear barrier is induced *deeply* into rail top and sides by exclusive "Hi-Electro" hardening. This exacting heat treatment permits maximum, file-like wear resistance without brittleness.

Try the new links . . . and the many other *special-purpose* tractor undercarriage parts, all designed and built to keep your cost-per-hour to a minimum. Cat undercarriage specialists can help you select right combinations and give you money-saving recommendations tailored to your particular needs. It's all a part of your Dealer's Custom Track Service . . . the practical approach to lowering undercarriage costs by extending part life and machine availability through proper parts selection and parts care.

Etched rail cross-section shows deep, uniform wear case found on top and sides of new links.

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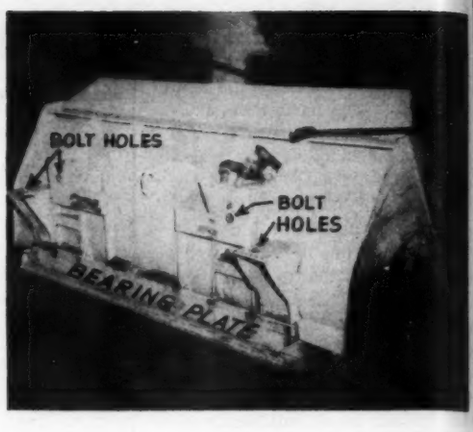
Quick switch: fork-lift to loader



Brown Bros., bridge builder of Lansing, Mich., has adapted its front-end loader so that it can be quickly converted into a fork-lift or a short-boom crane.

With the standard equipment, the change-over used to take two men about an hour. Using Brown's modification, the switch from fork-lift to bucket takes one man only about 15 minutes.

Although the scheme can be adapted to most types of loaders, Brown works with a Michigan 125A rubber-tire loader. In the manufacturer's design, the change-over from fork to bucket is made through close-fitting pin and bearing connections. This precision fitting takes time. In Brown's adaptation, the pin and bearing connections are replaced by easy-to-fit bolting points.

Brown starts with the standard fork-lift attachment. Although the forks can be removed, the back frame of the attachment stays in place. For greater prying action, the bearing points of the two hydraulic rams are shifted 2½ inches toward the machine. This is done by welding bearings to the outside surface of the original bearings.

The bucket is modified to fit a 4-bolt connection with the back frame of the fork-lift. Two of the 1¼-inch bolts are set in horizontally while the other two make a vertical connection. A bearing plate, made of a 6-inch angle, is welded to the lower back of the bucket. On this angle rests the lower horizontal member of the back frame of the fork-lift attachment. A 1-inch-high strip of steel, welded to the angle, forms a groove into which the lower horizontal member sets.

To switch from fork-lift to bucket, the operator first takes off the forks. Then, maneuvering the rig, he approaches the bucket, which is resting on the ground. Using the hydraulic controls, he places the back frame in its correct position on the bucket. Inserting and tightening four bolts completes the switch.

A 15-foot-long boom can also be easily attached to the back frame. The boom, made of a 6-inch I-beam, attaches to the back frame at three points. There is a pin connection at the base of the I-beam at low center of the back frame. There is a hook-over connection on each side of the top of the back frame. These two connections are made from steel members stemming out from the I-beam.

LUBE LOGIC

Don't let storage tank contaminate gasoline

One of the basic essentials of good equipment performance is clean fuel; and the best way to make sure the fuel you use is as clean as the fuel you buy is to keep your own storage facilities up to snuff.

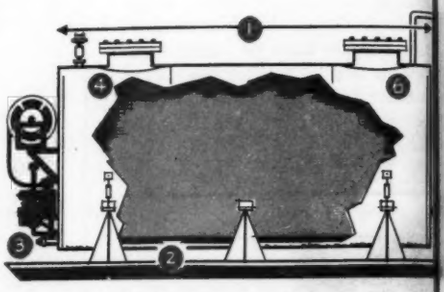
What does it take to make the ideal gasoline storage tank? Here are some of the specifics that Texaco engineers have found to be most important.

The ideal gasoline storage tank has:

1. Plenty of room. Every time you fill a tank you stir up the sediment at the bottom. The bigger the tank, the less it has to be refilled, and the longer the sediment stays settled on the bottom.

2. Welded construction.

3. A 1½" drain valve, located at the lowest point.



4. A large hand hole plate or manhole, to make clea easier.

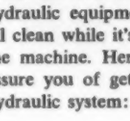
5. A suction line to the gasoline pump located several in above the tank bottom, to avoid drawing out the sedi and condensate.

6. A fine-mesh strainer over the filler opening.

Four tips to keep hydraulic oil clean in storage and handling

Even the best maintenance techniques won't keep your hydraulic equipment on the move if you don't keep the oil clean while it's in storage and while it's being put into the machine. Here are four simple precautions that will assure you of getting nothing but clean, clear oil in the hydraulic system:

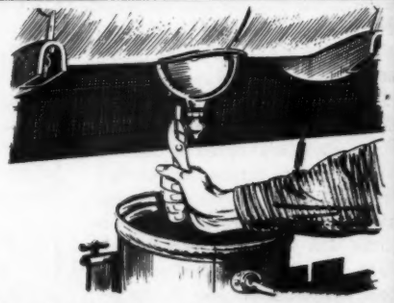
1. Store the drums on their sides, indoors if possible, but in any event under some sort of shelter.



2. Before you open a drum, clean the top so that no dirt or water can fall into the oil.

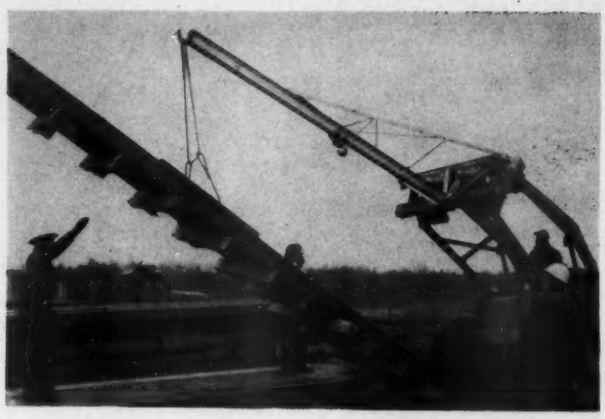
3. Make sure that you use only *clean* hose and containers in transferring the oil from the drum to the equipment.

4. Filter the oil as it enters the reservoir on the machine. If the fill pipe on the equipment doesn't have a filter, use a funnel fitted with a 200-mesh screen.

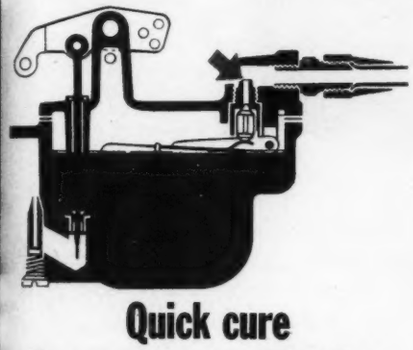


Protect diesel fuel injector with periodic tank drains

Dirt and water in diesel fuel can ruin a fuel inject in no time. Even if you keep the fuel clean duri storage, there's still a good chance that temperatu changes will create enough condensation in the fu tank on your rig to start rusting in the injector Several operators have pretty well solved this proble by partially draining the fuel tank once or twice week. Simply draw off about a gallon of fluid throu the drain valve at the bottom of the fuel tank. Y lose some fuel this way, but you also get the accum lated water and other contaminants clear out of t fuel system. The cost of the fuel you drain off is small loss compared to the repair bills you save on t fuel injectors.

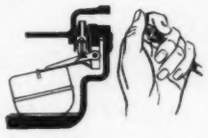


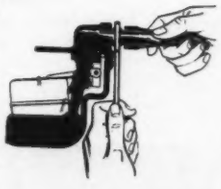
fonore efficient maintenance



Quick cure for carburetor flooding

Repeated stalling and hard restarting is often caused by a tiny particle of grit, which lodges under the carburetor float needle valve, lets too much gasoline into the carburetor and causes flooding. You can often solve the problem with the following routine: disconnect the fuel line at the carburetor and plug it with a cork, a pencil or anything else that will fit. Then run the engine until you've used up all the fuel in the carburetor. Reconnect the fuel line, crank the engine, and the rush of gasoline into the empty carburetor will often flush the foreign matter out of the needle valve seat. If you have a friend but no cork, have the friend start the engine while you plug the disconnected line with your thumb. Same difference.





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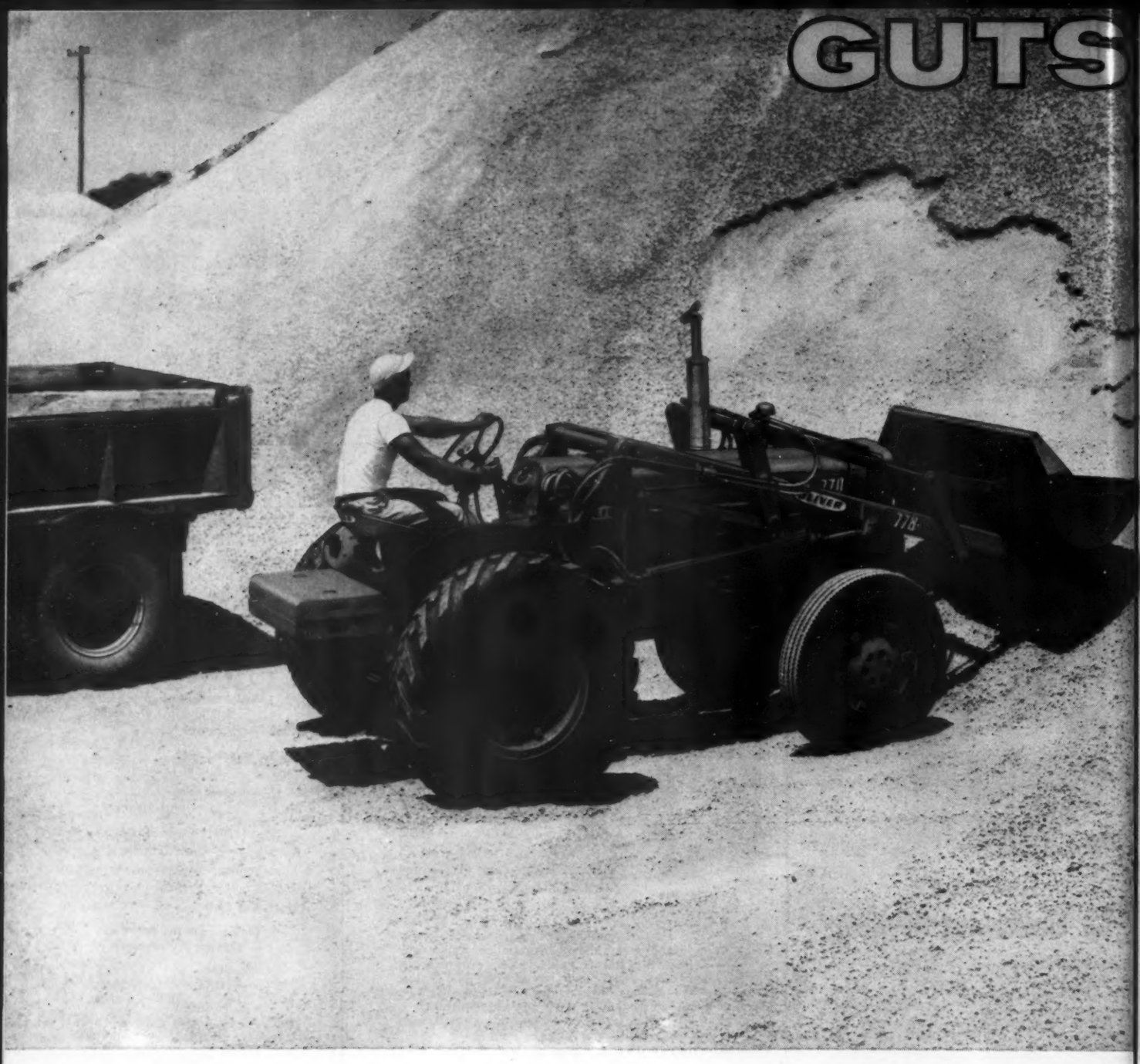

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Oliver wheeled models give you extra "working tractor" for your money—no more, no less. No seldom-needed gimmicks that boost price or take a bite out of quality. See if the facts below don't give you a new slant on tractor selection.

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Hp ratings, as such, provide little more than an indication of machine size. Failure to look further at each tractor's power picture could cost you production and profit. More important than horsepower ratings are:

1. **How much maximum torque does the engine develop?** The higher the ft./lbs., the higher the work potential.
2. **At what speed does the engine develop maximum torque?** The lower the speed, the more practical the power for lugging, crowd and fast start-up under load.
3. **How hard is the engine working?** Small engines can be revved-up to deliver unusually high power. But high rpms lead to excessive heat and wear. Generally speaking, an engine that can deliver the power you want at slow speeds will last longer, be more responsive over more of its power curve and have a bigger reserve of power for emergencies.

As evidence that Oliver offers more practical power, more working tractor for the money, check competitive "specs." Though one or two other tractors may equal Oliver on one of the above points, NONE CAN COMPARE FAVORABLY WITH OLIVER ON ALL THREE!

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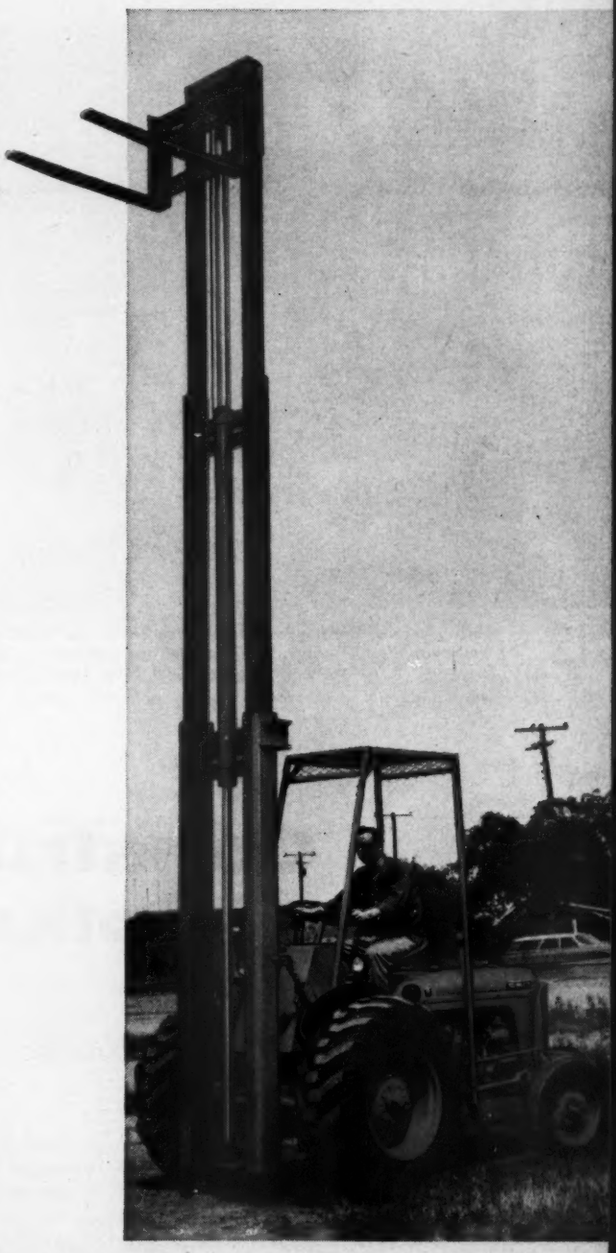

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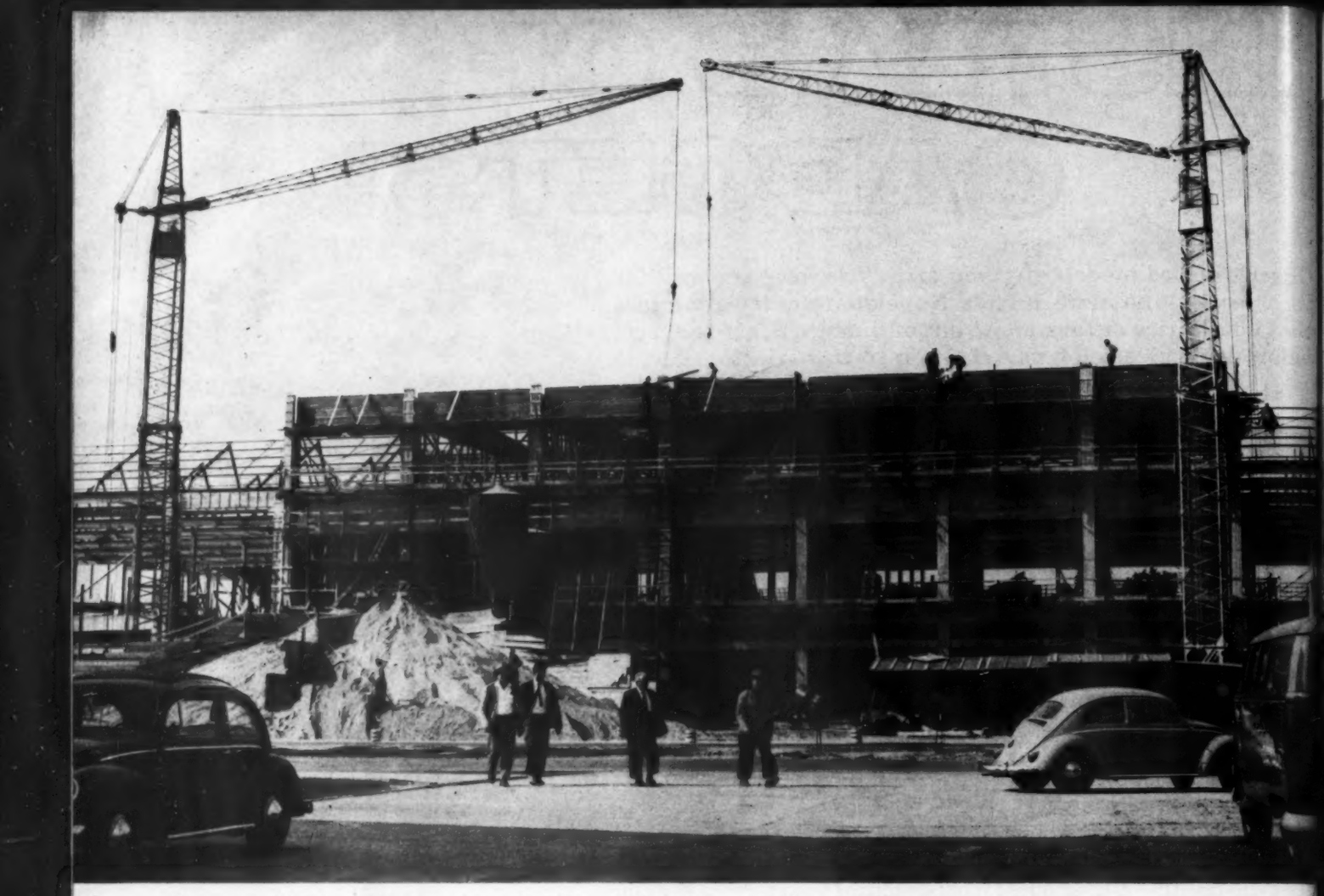
NEW FORK LIFT TAILORED TO YOUR PRESENT NEEDS—GROWS AS THEY GROW! This new Model 551 offers a choice of five "integral unit" towers for maximum lifts to 8, 10, 12, 14 or 21 ft. Thus, if your present work requires lifts to only 8 ft. or less, save money and get the low tower. When you land jobs needing higher lifts, trade-in that tower, let the new work pay for the higher tower. Lift capacities range from 5000 lbs. at 14 ft., to 2000 lbs. at 21 ft. Field-installed optional equipment includes 3rd and 4th spools, side shifter, attachments that interchange with forks.

For more facts, use Request Card at page 18 and circle No. 254



Among several buildings under construction at the Volkswagen Works in Wolfsburg, West Germany, is this lacquer and assembly-line plant. Contractor Dyckerhoff & Widmann uses Liebherr and Peine tower cranes for handling materials and supplies; also for placing concrete. The cranes move on specially laid tracks paralleling the south side of the plant. Materials are stacked at specified locations and lifted into place according to work schedules.

(Additional photo on front cover)

Construction booms in Volkswagen city

West German auto plant expands; Wolfsburg also keeps pace

by WILLIAM H. QUIRK, editor

The industrial boom in West Germany has sparked a construction boom of impressive proportions. Nowhere is this building activity more in evidence than in Wolfsburg, world-famous as the home of the Volkswagen automobile. This auto company, fourth largest in the world, has under way a construction program budgeted at 400 million Deutschmarks, or $100 million. Of this total, $62½ million is allocated for plant expansion at Wolfsburg, with the remainder going for additions to VW plants in neighboring cities and for workers' housing in Wolfsburg.

Now being erected at VW headquarters are an addition to the factory power station; a 4-story service building; a 14-story administration building; an 8-story experimental or testing center; and, largest of all, a new lacquer factory and assembly-line plant. This last structure measures approximately ½ mile long × ¼ mile wide and is scheduled for completion by midsummer. At the city of Kassel, 113 miles south of Wolfsburg, Volkswagenwerk is putting up an addition to its factory for the production of spare parts and transmissions that will have a floor area of 140,000 square yards. Kassel has also a VW reconditioning plant. Other nearby VW plants are at Hannover, 52 miles west, where commercial vehicles are produced; and at Braunschweig, 19 miles south, where front axles and production tools are turned out.

All the new buildings are constructed of cast-in-place reinforced concrete, generally faced with red brickly to conform to existing structures at the plant. In wide-span, heavy-machinery areas, steel girders give structural support to the roof and rolling lift cranes. In one structure with a 50-foot free span, the concrete roof slab was placed around closely spaced, hollow fiber tubes, 10 inches or more in diameter. These voids represented a saving in concrete without loss of structural strength.

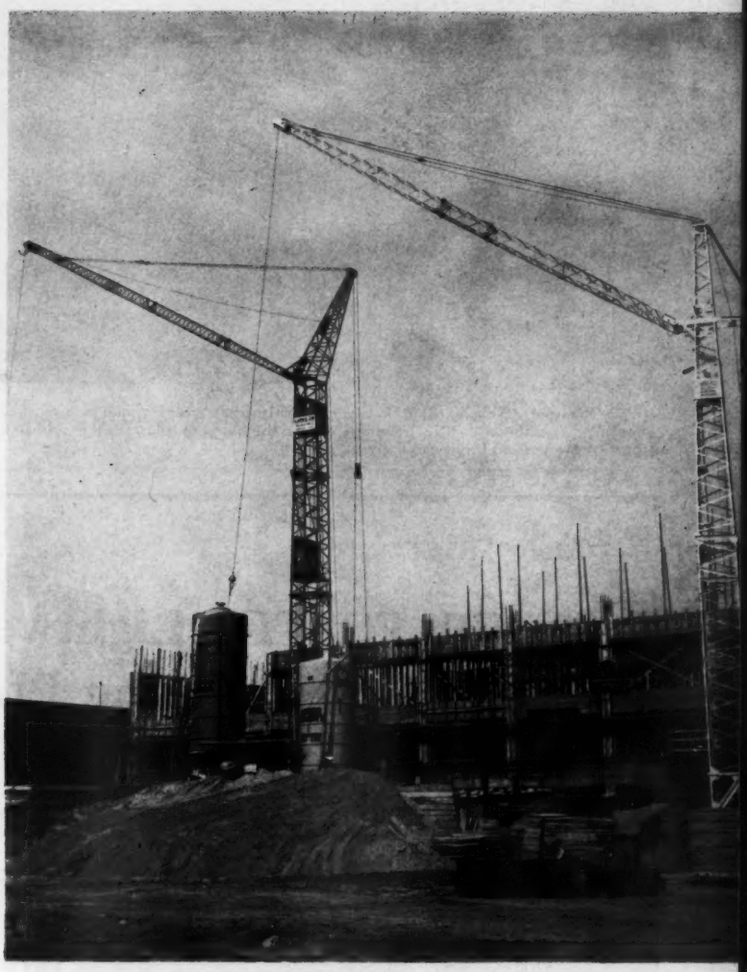
At present, 20 different contracting companies are working at Wolfsburg, employing close to 4,000 men. They come from all over West Germany, and many have established permanent headquarters in the city and have built barracks to house their personnel. All jobs are awarded on a low-bid basis, and competition is keen despite the contractors' awareness of the strict building code that must be followed.

Every structure going up has its own batching and concrete-mixing plant at the site. Materials are shipped in by rail or truck. A typical installation includes one or two cylindrical silos for bulk cement, stockpiles of aggregate that are loaded to a centrifugal mixer from a bucket pulled by a power winch, and the ubiquitous tower crane that is a work horse on all types of construction not only in Wolfsburg or Germany, but throughout Europe. Various makes are represented on the job—climbing, rail-mounted, or fixed—with Peine and Liebherr rigs predominating. The majority are rail-mounted.

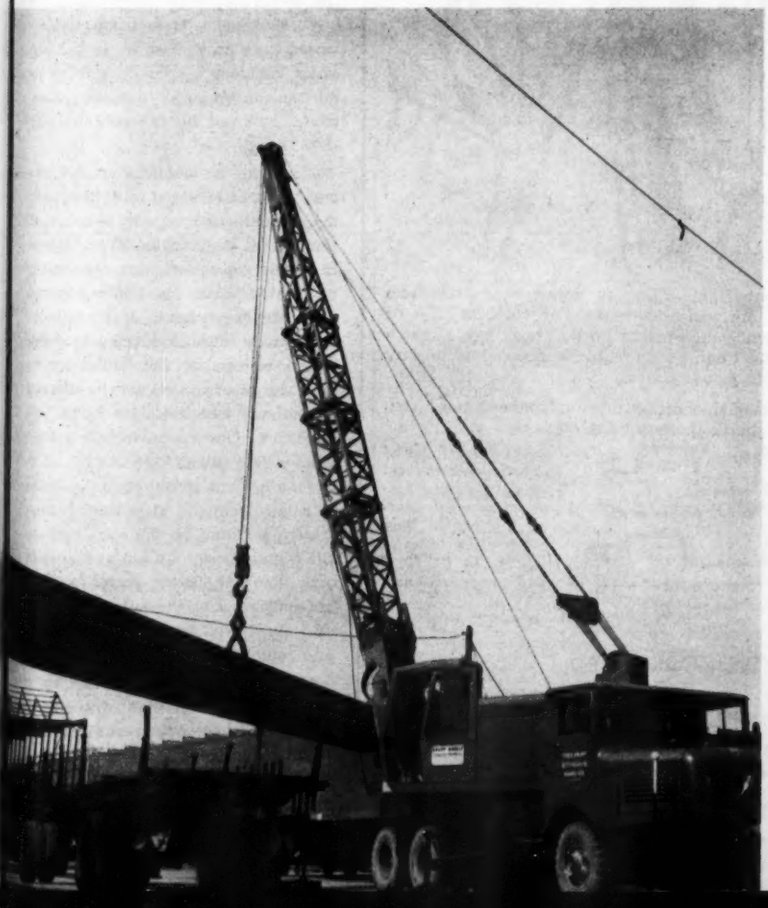
They roll along smoothly on steel rails, at the sides of the building, handling all materials and placing concrete. The mix used develops a strength

(Continued on page 14)

On the north side of the half-mile-long assembly plant, bricklayers working from scaffolds (foreground), place red facing brick around the reinforced-concrete framework. Background, a Peine tower crane sets scaffolding and formwork.



Construction of this reinforced-concrete service building is handled by Lucks & Co. The contractor employs a pair of tower cranes to unload material from trucks and transfer it to the building, and to move concrete from the on-site plant to the forms.



Steel girders for the big assembly-line plant are shipped by rail from Cologne on flat cars. At a plant siding, a Krupp-Ardelt truck crane, with outriggers set, transfers the steel to a trailer for delivery to the building. The rig has a lifting capacity of 15,000 kilograms, or around 16½ tons.

Dr. Ruediger Recknagel, city building director (center), explains models of a new development under construction in Wolfsburg. Blocks of 16-story flats are on the outer fringe of the central shop and service area. Stucco or concrete exterior walls in this industrial city are white or of light pastel shades. Nearly 15,000 apartments have been constructed in Wolfsburg since the end of World War II, sixteen years ago.

From the roof of the existing 13-story administration building, one sees construction under way for new service and office buildings across the parking plaza. In the background, right, is part of the present main assembly plant.

The only completely prefabricated building in Wolfsburg is this 9-story apartment house, which has eight shops on the ground floor. The full-story-high concrete wall panels were cast at a Wolfsburg commercial plant.

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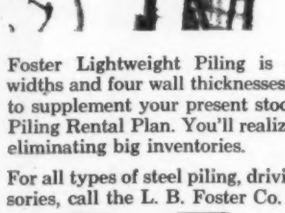

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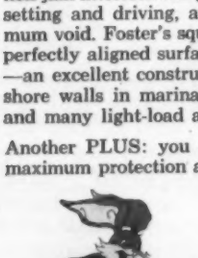

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(Continued from page 12)

of 225 kilograms per square centimeter at 28 days. Concrete is also used in paving a 5-mile test track at VW's 60-acre proving grounds. This loop, built of prestressed concrete, is 30 feet wide, is stressed at the site, and has no joints.

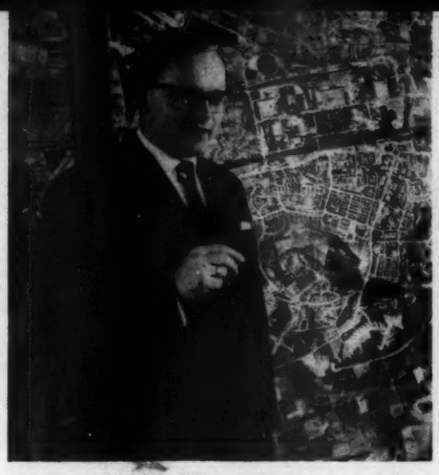
Expansion needs

While the automobile industry in the United States is still plagued with large dealer inventories, the situation in Wolfsburg is quite the reverse. World demand from the 120 countries that now buy Volkswagens is so great that present facilities in the factory cannot turn the cars out fast enough. Present production is 4,000 vehicles a day, of which 20 per cent are shipped to the U. S. A.; 35 per cent to the rest of the world; while West Germany absorbs the remaining 45 per cent. And there is still a waiting list in many parts of the world of people who want to buy Volkswagens. In addition, Volkswagen has announced a new 1500 series compact car to go into production as soon as possible. This model will not be exported to the U. S. A.

Consequently, facilities at Wolfsburg must be enlarged to handle new model production, as well as to meet the current demand for VW's. There is ample room for such expansion on the 815-acre plant site located along the north bank of the Mittelland Canal. The canal crosses Germany, connecting the Rhine River with the Elbe, as well as with Berlin to the east and the Oder River beyond that. The present factory buildings occupy about 250 acres, with the main plant stretching out a mile in length from the 13-story administration building at the west end to the central power station at the east end. The 165,000-kw power station not only services the auto plant, but also all of Wolfsburg with electricity and remote central heating. It consumes 1,000 tons of coal daily.

At present, one-third of the station's pit-coal requirements are imported from the U. S. A. As the new addition goes on the line, the daily consumption of coal will necessarily be stepped up. Besides coal, other

More typical of present housing in the model auto city are these 4-story blocks of flats. The outdoor poster of Toulouse-Lautrec's "The Bar" announces an exhibition of French paintings at the Wolfsburg community center.



With a large-scale map of Wolfsburg as a backdrop, Dr. Recknagel tells of plans to expand the city from its present 60,000 population to some 100,000 or more residents.

"Our two countries have much in common and much to learn from each other," Prof. Heinz Nordhoff comments to a group of visiting U. S. businesspaper editors.

U. S. imports are in evidence throughout VW's production plant in the shape of giant presses, gear cutters, and assembly-line control equipment. This U. S. influence in export-import caused Volkswagen's Director General Heinz Nordhoff to remark to a visiting group of American editors:

"America is of special interest to me because it is the world's best Volkswagen customer outside Germany. Our two countries have much in common and much to learn from each other."

Industrial and civic interest

Half of the 37,000 employed at VW's main plant live in the well planned and well constructed city of Wolfsburg along the south bank of the canal. The rest commute to work by car or rail from nearby cities and villages. An additional 29,000 are employed at the three other neighboring VW plants. Present population of Wolfsburg is about 60,000, and the city is building vigorously to accommodate 100,000 or more. It hopes, before too long, to have enough housing facilities available to take care of all plant employees who work in Wolfsburg, thus eliminating commuting.

Since about 75 per cent of the residents of Wolfsburg depend, directly or indirectly, on the auto plant for their livelihood, Volkswagenwerk is taking an active part in housing construction in the city, as well as in industrial building at the plant. VW sponsors one contracting company, while the city of Wolfsburg supports another. Between the two, they have been responsible for turning out each year housing projects containing some 2,000 separate apartments. Other private builders are also helping, but on a small scale.

According to Dr. Ruediger Recknagel, head of the city building council, housing construction in Wolfsburg might be called "socially assisted" construction, since most of the financial assistance comes from the government. Personal resources after World War II were meager. Few people had homes that were not destroyed or damaged. Hence the government, at local and national levels, along with industry, has been

(*Continued on next page*)

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Equipment or use	These conditions	Use this Rod	Application
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Earthmoving, drilling tools, rippers, augers, ditchers, excavators, loaders	Severest abrasion	VICTORTUBE (Tungsten Carbide)	Gas AC-DC Arc
Earthmoving tools, brick augers, conveyors, mill guides	High abrasion; sliding friction	VICTORITE	Gas AC-DC Arc
Crushers, grinders, mixers, scrapers, fan and screw conveyors	Abrasion and impact	TUBE VICTORITE	Gas AC-DC Arc
Cement pumps, brick dies, dry bearings & journals, expellers	Heat; abrasion, corrosion	VICTORITE 1	Gas AC-DC Arc
Crusher & dredge parts, bucket teeth. A tough low-cost hardfacing	Severe impact; abrasion	VICTORALLOY	Gas AC-DC Arc
Crushers, bucket lips & teeth, muller tires, dozer blades, dredge pumps	High abrasion; medium impact	VICTORALLOY #1	Gas AC-DC Arc
Clutch parts, gears, latches, pins & keepers; build-up for hardfacing	Angular shock; extreme impact	VICTORALLOY "A"	AC-DC Arc only
Tractor idlers, sprockets, rolls, crusher parts, pump casings, impellers, liners	Heavy impact; moderate abrasion	VICTORALLOY "B"	AC-DC Arc only
Cement screws, gudgeons, drag chains, pressure rolls, mixer blades & paddles	High abrasion; moderate impact	VICTORALLOY "C"	AC-DC Arc only
Drill tools, crawler pads, crushers, mine rails; build-up for hardfacing	Severe impact; compression	VICTOR Multi-pass (for Build-up)	AC-DC Arc only
Hardmetal underbase for manganese steel parts on crushers, dredges, dippers	Severe impact; compression	VICTOR Ni-Mn (for Build-up)	AC-DC Arc only
Low-cost "stainless" joining rod for crushers, dippers, crawlers, dredges	Severe impact	VICTOR Ni-Mn (for attachment)	AC-DC Arc only

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Equipment or use	These conditions	Use this Wire
Crushers of all types, tool joints, mullers	Severe abrasion; moderate impact	VA 0
Scrapers, bucket teeth crushers	Abrasion & compression with impact	VA 1X
Dredge rolls, cable sheaves	Severe compression & impact with abrasion	VA 2X
Mill guides, crushers, grinders	Severe abrasion & compression with impact	VA 3
Build-up on trunnions, tractor idlers & tracks	Severe impact & compression	VA 4X
Shovel rollers, tractor rollers & idlers	Severe metal-to-metal impact & abrasion	VA 5X
Build-up on mine car wheels & tractor rollers	Severe impact & compression with abrasion	VA 7X
Dozer blades, scraper blades, tool joints	Earthworking abrasion & impact	VA 8X
Tool joints, crushers, scrapers, swing hammers	Extremely severe abrasion; moderate impact	VA 10
Tool joints, scraper blades, augers	Maximum abrasion; earth cutting, scraping	VT 60 (Tungsten Carbide)
Build-up manganese steel parts for overlay or to size	Wear, all types manganese steels	Ni-Mn (Hadfield)

VICTOR for hardfacing

Profitable dealerships open; inquire now!

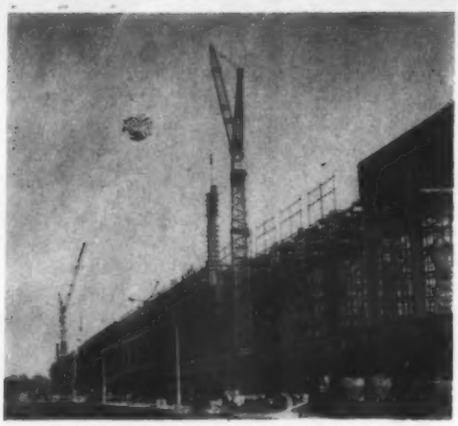
VICTOR EQUIPMENT COMPANY

Alloy Rod & Metal Division

13808 E. Imperial Highway, Norwalk, California . . . Wakita, Oklahoma

H-76

For more facts, use Request Card at page 18 and circle No. 256

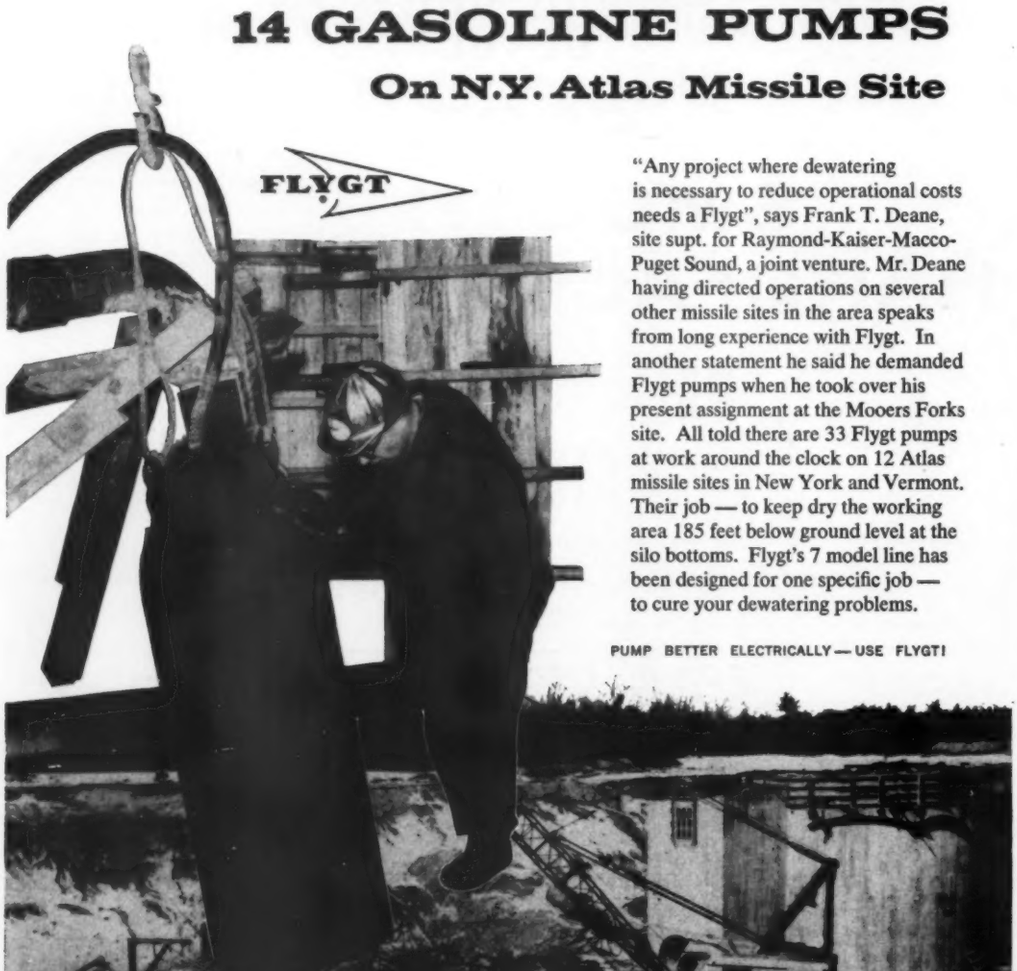


A pair of Peine tower cranes handle materials and place concrete for the north-wall construction of Volkswagen's new assembly-line plant. The wide blacktop road runs east in the direction of Wolfsburg castle.

Carpenters check forms in preparation for concrete placement on a new service building. Closed fiber tubes form voids, lessening the weight of material in the 50-foot-span reinforced-concrete slab.

1 FLYGT REPLACES 14 GASOLINE PUMPS

On N.Y. Atlas Missile Site



"Any project where dewatering is necessary to reduce operational costs needs a Flygt", says Frank T. Deane, site supt. for Raymond-Kaiser-Macco-Puget Sound, a joint venture. Mr. Deane having directed operations on several other missile sites in the area speaks from long experience with Flygt. In another statement he said he demanded Flygt pumps when he took over his present assignment at the Mooers Forks site. All told there are 33 Flygt pumps at work around the clock on 12 Atlas missile sites in New York and Vermont. Their job — to keep dry the working area 185 feet below ground level at the silo bottoms. Flygt's 7 model line has been designed for one specific job — to cure your dewatering problems.

PUMP BETTER ELECTRICALLY — USE FLYGT!

57-28

FLYGT Corporation

ORIGINAL MANUFACTURERS OF ELECTRIC SUBMERSIBLE 'DIRTY WATER' PUMPS!

HOOSICK FALLS, N. Y.

WESTERN SALES & SERVICE: STANCO MFGS. & SALES INC., 1666 Ninth St. (Corner of Olympic) Santa Monica, Calif. -IN CANADA- FLYGT CANADA LIMITED, Montreal, P. Q.

For more facts, use Request Card at page 18 and circle No. 257

(Continued from preceding page)

the principal builder. So, for instance, the city owns more than 50 per cent of shares in the construction company that is engaged in apartment projects, but the contracting company operates as a private entity under its own administration. This form of financing enables the auto workers to have modern pleasant homes that would be impossible to finance through private mortgages at the prevailing 6½ per cent interest rate. Dr. Recknagel calls this helping hand program "equalization of burdens."

A 3-L town

Through wise planning, Wolfsburg has become what a German journalist calls a 3-L town: luftig, locker, und lustig (airy, roomy, and merry). The city planners have spelled this out more precisely by zoning the total area to these approximate proportions:

Building construction	50 per cent
Woods	25 per cent
Grass—parks, playgrounds, etc.	15 per cent
Streets, railroads, parking lots	10 per cent
Total	100 per cent

Of Wolfsburg's nine churches of various denominations, seven have been put up since the war. Of the other two, one was built in the 12th and the other in the 16th century. There are 16 schools, a 600-bed hospital, a community center with auditorium for concerts and theatrical events, a tennis club, swimming pool, and three soccer stadiums. Now under construction is a public cultural center that will include a library and theater.

While the auto plant absorbs practically the entire male population of Wolfsburg and unemployment is nil, the city fathers are fully aware that Wolfsburg is a one-industry city. They would like to encourage other industries such as canning, textiles, or paper to move in. Wolfsburg women, wanting to work, would find suitable employment in such enterprises. If other industries respond, Wolfsburg will have a boom on top of a boom in both industrial and housing construction. In the meantime, with a Volkswagen rolling off the assembly line every 15 seconds, and with 1961 production pegged at one million vehicles, there is enough activity on both sides of the Mittelland Canal to keep everybody concerned chugging along in fourth gear.

THE END

Johns-Manville news

■ Francis E. Dutcher has been named general manager of the Building Products Division and elected a vice president of Johns-Manville Corp., New York, N. Y.

He will have responsibility for the production, sales, and profits of the division, which operates 18 plants and a network of sales offices throughout the United States.

Labor Review

Labor Secretary gets no-strike pledge on missile-base work

"Economical and uninterrupted operations" at missile and space sites are aimed at by Labor Secretary Arthur J. Goldberg in a complex of arrangements including no-strike, no-lockout pledges by unions and employers involved in work at these sites.

The various employer and union groups are committed by pledges to cooperate also with a newly created commission set up by President Kennedy and given broad powers to avert and settle disputes. The powers and the pledges combine to create what Goldberg indicates will be voluntary arbitration, though he did not say so.

At a recent press conference, the Labor Secretary revealed that:

1. Labor and management representatives had given him, as representative of the President, no-strike and no-lockout pledges with respect to work at missile and space sites.

2. An executive order was issued by the President setting up an 11-member, tripartite Missile Sites Labor Commission to develop "policies, procedures, and methods of adjustment for labor problems at missile and space sites." Goldberg will be chairman.

3. Pledges of cooperation with the commission were given Goldberg in interchanges of letters with labor officials, the manufacturers, and the construction associations.

4. The commission will set up at each missile or space site an on-the-spot Missile Site Labor Relations Committee.

5. Existing voluntary disputes-settling procedures will be used—where effective.

6. Existing legal procedures also will continue to be used—and augmented.

7. The commission is authorized to set up special panels, composed of commission members or others (named by Goldberg), to hold hearings in disputes over which it has jurisdiction.

8. Panels set up to deal with disputes, including those between two building trades unions, that are not solved at the site will be tripartite, unless they involve a dispute between an industrial union or employer and a construction union or employer, in which case the panels would be composed of public members.

9. The commission is empowered to employ an executive secretary and to delegate to its chairman, vice chairman, and executive secretary such powers as it chooses. Goldberg announced that Julius Kuczma, the labor-relations advisor to the Navy Department, has been named as executive secretary.

The commission's activities will be limited to missile and space sites; it will not "roam" through the defense industry generally nor get back to the factories at which the missiles and components are made, Goldberg said.

Three-year agreements most popular this spring; 15 cents, average increase

Although there continue to be scattered reports of construction crafts agreeing to forego wage increases this year, a review of collective bargaining settlements this spring indicates little change in the industry's bargaining habits. Of 112 new agreements noted, 55 provide for first-year increases of 15 cents an hour in wages and fringes.

The survey also shows that predictions of a general swing toward short-term agreements because of uncertain business conditions and the change in the Administration have not held up. Exactly half—56—of the agreements reported so far run for three years; 34 remain in effect for two years; and only 22 expire in 1962. Thus, for the first time, 3-year agreements appear to be replacing 2-year pacts in the top popularity spot.

The average wage settlement this spring, however, is lower than that negotiated last year. At this point, the average for this year is 13.6 cents an hour, as against 14.6 cents an hour for the first six months of 1960 and 14.3 cents for all of last year.

Deferred increases due in 1962 under long-term contracts negotiated this spring average 14.1 cents an hour, and, again, 15 cents is the most common figure.

WORTHINGTON COMPRESSOR NEWS:

PORTABLE COMPRESSOR COMPETITIVE ANALYSIS CHART

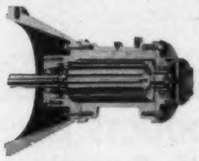
FEATURE OR BENEFIT	MONO-ROTOR	TWO-STAGE	SCREW-TYPE
DESIGN PROVEN IN CONSTRUCTION INDUSTRY	YES	YES	NO
ONE STAGE	YES	NO	YES
SINGLE ROTOR	YES	NO	NO
MAIN BEARINGS	2	4	4
TIMING GEARS	NO	SOME	YES
OIL SEALING	YES	YES	YES
SIMPLE CYLINDER SHAPE	YES	YES	NO
OIL PUMP NEEDED	NO	YES	YES
CRITICAL ALIGNMENT OF ROTORS	NO	NO	YES
TOTAL WEIGHT	LEAST	MORE	MORE
AVAILABILITY	NOW	NOW	?
CLUTCH	YES	SOME	NO
FEWEST PARTS	LEAST	MOST	MORE
MAXIMUM AMBIENT TEMPERATURES	125°	125°	115°
WARRANTY PERIOD	1 YEAR	*90 DAYS	*90 DAYS
FIELD PROVEN	YES	YES	NO

*(USUAL)

ANALYSIS PROVES THAT NEW MONO-ROTOR HAS BEST DESIGN

The easiest way to evaluate the compressor designs available today is to draw your own comparison chart. Above is one such chart covering many valid points of comparison between three compressor designs available—the screw type, the two-stage rotary and the new Worthington Mono-Rotor Blue Brute compressor. It clearly shows the new Mono-Rotor's superiority.

The new Worthington Mono-Rotor compressor is built with just one stage . . . just one rotor . . . just two bearings . . . no gears and no oil pump. It is obviously less complex than either of the other designs.



THE MONO-ROTOR HAS 1 ROTOR... 2 BEARINGS...NO GEARS...NO OIL PUMP

What proof of dependability is there for the Mono-Rotor? Over the last three years, this new compressor has been given what is probably the most thorough field testing ever given any compressor introduced to the construction industry. Tests have been so satisfactory that Worthington has extended the Warranty of these units to one full year from the usual 90-day period.

NEW 125' MONO-ROTOR COMPRESSOR

One of the most important points of comparison is the high temperature capability. The Mono-Rotor performs satisfactorily in the up to 125°F temperatures encountered in many domestic and foreign regions.

Note, too, that Worthington retains the clutch in the Mono-Rotor. Not necessary in daily operation, it still is helpful for very cold weather starting—and a real convenience in engine servicing.

Not noted in the chart is the fact that the new Worthington Mono-Rotors are 20% lighter in weight and are designed for improved towing and tracking. The third wheel is standard. It runs all day on one tank of fuel and has other features, too.

The Mono-Rotor Blue Brute can now be ordered in the 85', 125' and 250' sizes. See it . . . rent it . . . or buy it at your Worthington dealer listed in the Yellow Pages under "Compressors". Or write Worthington Corporation, Dept. 60-38, Holyoke, Mass. In Canada, Worthington (Canada) Ltd., Brantford, Ontario.

WORTHINGTON

PRODUCTS THAT WORK FOR YOUR PROFIT

For more facts, use Request Card at page 18 and circle No. 258

American influence on the

Master builders of Wolfsburg

Heinz Nordhoff

In 1930, General Motors Corp. hired Heinrich Nordhoff to write service booklets at the Opel automobile plant it had bought the year before in Russelsheim, Germany. Nordhoff was then 31 years old and a veteran of World War I, during which he was wounded in the leg. After the end of that war, Heinz, as he is generally called, studied engineering at the Berlin Technical College. Later, he got his start in the automobile industry as a student-apprentice with the Bavarian Motors Works.

After his switch to Opel, GM selected the promising young engineer to go to the United States and work at its plants there. Heinz Nordhoff jumped at the chance, for he felt that while the Germans had excellent automobile designers, they could learn much from Americans in organizing plant production. During his sojourn in the states, he made intensive studies of production techniques along with sales methods. As a by-product of his visit to America, Heinz Nordhoff speaks faultless English.

His efforts for GM paid off, for within 10 years Nordhoff was named manager of the Opel truck factory at Brandenburg, near Berlin, at that time the largest plant of its kind in Europe.

Another war—and as it drew to a close, Heinz Nordhoff was forced to flee Brandenburg with his wife and two young daughters to seek refuge in the western zone of Germany. He hoped to return to work with Opel at Russelsheim, then in the American occupation zone. But because the Opel plant had turned out German army vehicles during the war, the American authorities would permit no former employees of Opel to work there. Nordhoff was also told that if he stayed in the American zone, he would be permitted to do only manual work.

Works for the British

The British had a more realistic viewpoint, however. They occupied Wolfsburg where the Volkswagen plant had been pretty well blasted to pieces by bombers. The English occupation forces decided that the auto plant should be put into some kind of useful shape for servicing and maintaining their own army vehicles. Also, the plant might even produce a limited number of these Volkswagens, "people's cars," to make its workers self-supporting. Looking around for a general manager, the British picked Nordhoff, then at loose ends in Hamburg. He was still under par physically from the privations of war, but also grimly determined "to make this plant into the greatest car factory in Europe."

How well he succeeded is best told with a few statistics. Within 10 years after the war, the plant produced 1 million Volkswagens. In 1960, 865,000 vehicles rolled off the assembly line, and this year the figure is expected to hit a million. VW employees increased over tenfold, from 6,000 in the immediate post-war years to a present 66,000.

Building for the future

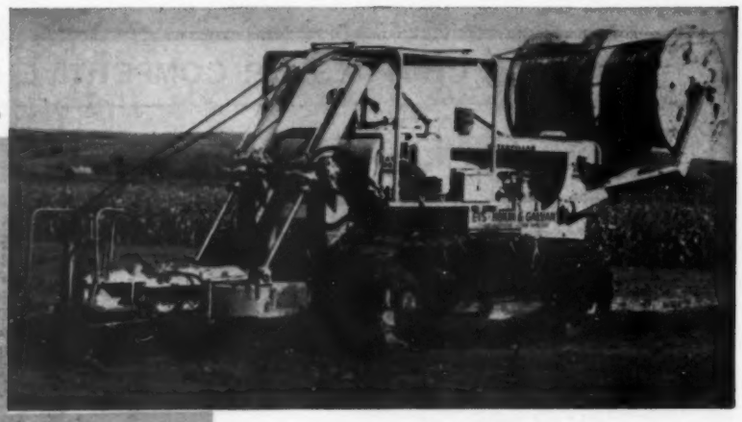
These workers now have preference in the purchase of VW stock, each being entitled to buy ten shares at $83.33 per share. Its open market value is around $245. This situation came about within the past few months when Volkswagen was denationalized from a government trusteeship to a public corporation. As a result, some $250 million worth of stock was offered to low-income individuals, after VW employees got the chance to exercise their option.

But the story of Volkswagen and its

IMPORTANT NEW PRODUCTS

IF YOU HAVE CABLE TO LAY...

here's the newest, fastest, most profitable method!

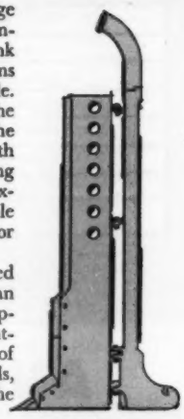


In our vast missile base construction program alone, there will be an estimated 100,000 miles of underground cable to be laid. Heretofore this work has been both time-consuming and costly with trenching providing the most accurate method of placing cable in the ground.

Now, the Kelley Products Division of Crutcher, Rolfs, Cummings, Inc., Houston, Texas, introduces a cable laying attachment for all models of Caterpillar track-type Tractors equipped with a Cat hydraulic control unit. Cable is precisely laid at specific depths in a fraction of the time formerly required *and* with 60 to 90 per cent less cost.

The new Kelley Cable Layer puts down any cable up to 3½" O.D. at depths ranging from a 12" minimum with the D4 to a 72" maximum with the D9. The laying shank is far enough behind the tractor to permit unrestricted maneuvering without deviating from the cable line yet close-coupled enough to provide accurate control of depth and position. Vertical movement of the tool bar is attained by two 7" hydraulic cylinders with 48" stroke. Lateral movement, also hydraulically controlled, permits offset laying within 24" of paving or buildings, abutments, shoulders, culverts, bridges, etc. Exacting placement of the shank is attained. This feature also permits steering of the cable-laying shank when turns are made.

Shanks are available in a variety of cable-matching sizes and widths to reduce drag and possible damage. Shanks are of high-alloy, wear-resistant steel with replaceable leading edge and point. The cable guide or conduit, attached to the ripping shank with hardened pins, swivels and opens for easy removal or insertion of cable. A roller section, at the bottom of the conduit, guides the cable into the channel created by the ripper with the very minimum of drag, bending and friction. Cable pull rarely exceeds 100 lbs. with the Kelley Cable Layer though cable is designed for much higher load.



Cable reel carriers, front-mounted for better balance and visibility, can be custom-engineered for specific applications. Control is by a Cat front-mounted Cable Unit. Full reels of cable, weighing up to 7000 pounds, are automatically unreeled by the drag or pull on the line.

On actual cable-laying contracts, the Kelley Layer averages about a mile of cable each hour. When a Kelley extra-heavy duty Ripper is used in conjunction to open a path for the Cable Layer, production is profitably boosted. The speed and accuracy of the Kelley Cable Layer reduces costs over previously-used methods by 50 to 60%!

Kelley Cable Layers have already proven their ability on several major construction projects. If there is cable to lay on a contract, present or future, contact your Caterpillar Kelley Dealer for more information on the new money-making Kelley Cable Layer.

KELLEY PRODUCTS DIVISION
Crutcher-Rolfs-Cummings, Inc.
P.O. BOX 2073
HOUSTON 1, TEXAS

5708

For more facts, use Request Card at page 18 and circle No. 259

Coming Next Month

CONTRACTORS and ENGINEERS

MAGAZINE OF MODERN CONSTRUCTION

A new machine is reviving interest in slip-form paving in California, which has strict smoothness requirements that meant contractors frequently had to do a lot of grinding. The rig, mounted on four tracks, travels a specially prepared path on the base. All finishing elements and side forms are carried on the heavy frame of the machine.

Washington, D. C., is getting a new stadium, and the job is a tough one. The structure, 750 feet in diameter and some 135 feet high, requires special formwork throughout because of the varying heights of floors and the circular shape. The most spectacular part of the work is being done by a 35-ton stiffleg, which is setting the 7-shaped box girders that support upper grandstand and roof.

READER REQUEST CARD — JULY '61

For more information or catalogs on any product described in this issue circle the correct identification number below:

1	2	3	4	5	6	7	8	9	10
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CHECK YOUR TYPE OF BUSINESS

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Coming Next Month

CONTRACTORS and ENGINEERS

MAGAZINE OF MODERN CONSTRUCTIO

Sand drains are being used to stabilize a new section of highway, but the real story lies not in their use, but in how the job is being done at a profit for the contractor. The method involves a dumper that overturns rail cars of sand, emptying them into a sump so that the material can be pumped to the work area for use as fill and for the sand drains themselves.

There's plenty of expensive hand labor generally needed in setting and stripping forms for a bridge deck, but one contractor got around the need for it by using a rig resembling a gantry to carry steel deck and curb forms and set them in place. Details explain how the rig was modified to handle this particular job for a prestressed-concrete-girder bridge.

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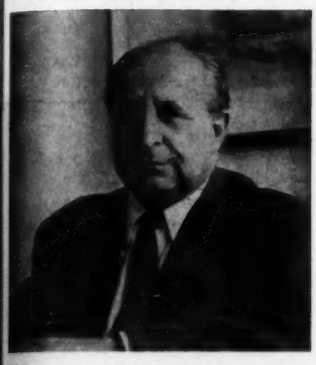
SERVICE

61-year-old, keen-eyed director general, Heinz Nordhoff, honorary doctor and professor of Braunschweig Technical College, is one not only of automobile production but of plant construction as well. While Prof. Nordhoff was busy turning out VW's, he relied on Robert Otto to develop and enlarge the huge plant, not only for present production but also for future expansion.

Robert Otto



During the chaotic inflation and depression era that followed World War I in Germany, a 22-year-old carpenter and bricklayer left his native land to seek his fortune in America. The year was 1924. When young Robert Otto got off the boat in Hoboken, N. J., he intended to settle in New York City. But someone told him, in German—for he spoke not a word of English—that New York wasn't America. Taking the advice to go west, Otto set off for Chicago.

It was summer, and enough building construction was under way to give the young German skilled worker a steady job, once he raised $600 to get into the union. But when winter came there was no work, and Robert Otto was even evicted from his rooming house. When things were blackest he got a job in a South Chicago steel mill, flipping over red-hot billets as they were rolled into shapes—an operation now performed mechanically. The pay was good and Otto, very mindful now of the value of money, invested some of his weekly pay envelope in night courses at Chicago Technical College. He also found that his schoolboy Latin was a big help in learning English, and that his earlier love of mathematics was a good background for his courses in structural engineering.

Having now acquired a solid engineering education, Otto moved out of the steel mill to Roberts & Schaefer Co., specialists in engineering, construction, and manufacturing, then engaged in the design and construction of many of Chicago's new buildings. This old-line Chicago firm was acquired in 1954 by Thompson-Starrett Construction Co., a New York City builder and contractor.

With his early background of practical, do-it-yourself building experience, and newly acquired technical training, Robert Otto moved steadily ahead as a structural engineer. Along in 1936, feeling the need of a rest, and with work slacking off during the depression, Otto returned to Germany for a visit after 12 years in America.

War and peace

He soon discovered that his special talents were too valuable for his government to overlook, so he was put to work building for the state. The possibility of his returning to the U. S. A. grew faint, and soon disappeared entirely at the outbreak of hostilities in World War II. For the past 20 years he has been with Volkswagen, even helping to defend the plant as an anti-aircraft gunner stationed in Wolfsburg.

"There were 1,346 heavy bombs dropped on the plant," the stockily built Otto reminisced. "I know for I was there. I counted every one and charted them where they fell. Just lately while we were excavating foundations for our new buildings, we discovered some of these old bombs with delayed fuses, still buried deep in the ground. We managed to get them out without hurting anybody."

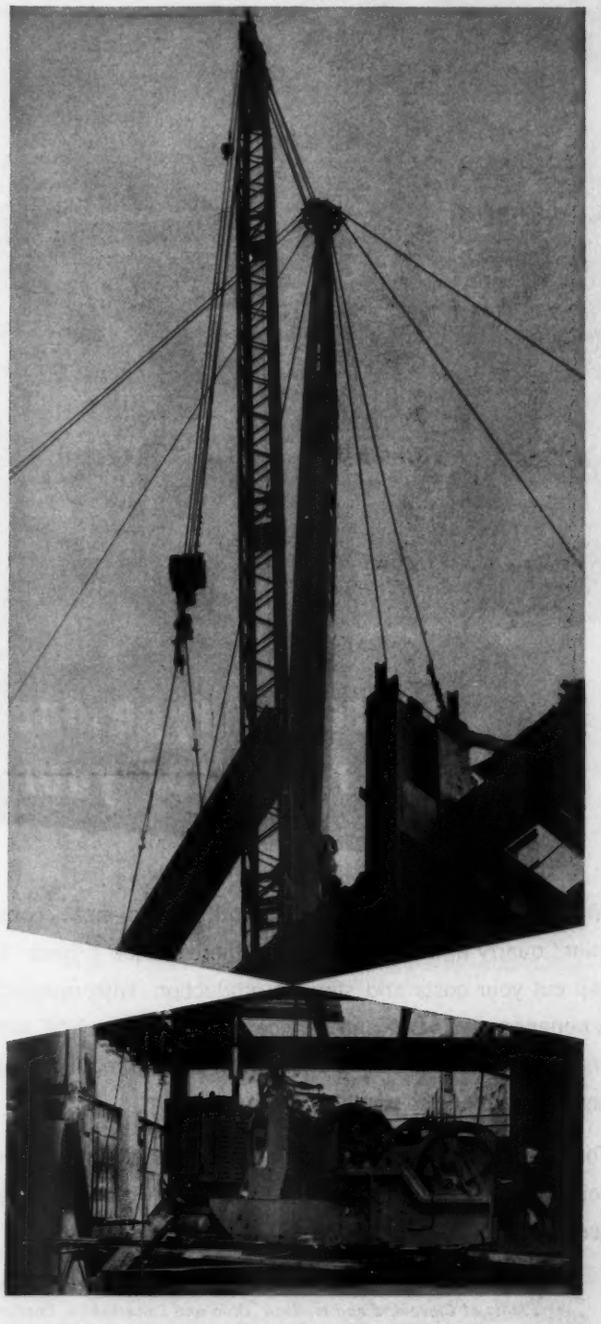
Otto's only quarrel nowadays is with the contractors and work crews building the additions at Volkswagenwerk and putting up new apartment houses in Wolfsburg. He insists on top-quality work, and like most veteran builders feels that the present-day bricklayers could lay a lot more bricks per day than they do.

"I hope to get away from brick walls in housing," he related, "by pouring exterior walls of 8½-inch concrete. We'll even get along without regular forms by using 1½-inch cinder blocks on the outside and gypsum boards on the inside. We can paint or stucco the blocks and plaster the interior, doing a better job cheaper and quicker.

"In America if a house doesn't stand up for 50 years it's no good. In Germany if it doesn't last for

it pays to know your derricks

They're your answer to confined work area on multiple-story erecting



In setting steel for the new North Carolina National Bank Building (Charlotte, N. C.) limited work area allowed no room for even a small truck crane, let alone one large enough to handle the steel for the 18-story structure.

The problem was not new to Bristol Steel & Iron Works, Inc. of Bristol, Virginia, who landed the job on the basis of using an AMERICAN steel erector's derrick. They not only met the problem of close-in, high-up erecting, but eliminated the usual problem of street barricades as well.

The derrick was first set up at the sub-basement level, then jumped to higher levels as work progressed. Power was provided by an AMERICAN Model SE 250, three-drum hoist (lower photo).

If you bid on multi-story work, you'll find that your AMERICAN man knows and understands your problems. He can offer you help on hoists and derricks in all sizes and types . . . truck cranes from 12½ to 60 tons . . . crawler cranes 12½ to 110 tons and with up to 270 feet of boom. Chances are, he can give you some profitable ideas right now.

D-202

AMERICAN

AMERICAN HOIST and DERRICK COMPANY
ST. PAUL 7, MINNESOTA

EXCAVATORS ½ to 4½ yds. | CRANES 12½ to 110 tons | DERRICKS-HOISTS to 800 tons | REVOLVER CRANES to 400 tons | FORGED FITTINGS FOR WIRE ROPE AND CHAIN (Crosby-Laughlin Div.)

For more facts, use Request Card at page 18 and circle No. 260

(Continued from preceding page)

500 years it's no good. Your way is better. Those coming along in the next generation or so should be able to decide themselves what kind of house they want to live in, and not have to take something that their grandfathers built."

In his post as manager, Building Division of Volkswagen, Otto travels all over the world, constructing assembly plants in South America, South Africa, and Australia. Besides industrial and housing construction, he has a hand in road building, pipe laying, swimming pool construction, and practically every type of building activity encountered around a huge factory and its satellite city.

Now 59, Robert Otto lives quietly with his wife in an attractive house he built 10 years ago in Fellersleben, a little town west of Wolfsburg. There he tends his garden, cultivates the fruit trees, reads avidly, listens to good music as he sips an old wine, and follows his lifetime hobby of clipper ships. He has some excellent models, as well as a varied collection of books on the subject. "It brings back memories," he said, "of the sailboat I had on Lake Michigan when I was living in Chicago." THE END

Five transit-mix trucks chute concrete into a caisson for the elevated roadway and entrance bridge at Chicago's O'Hare International Airport.

Teams of transit mixers speed placing operation

When top speed was called for in placing concrete in the caisson foundations for the elevated roadway and entrance bridge at Chicago's O'Hare International Airport, the Case Foundation Co. came up with a method that chopped 40 days off the scheduled completion date for the contractor, W. E. O'Neill Construction Co.

The pace-setting placement operation required the teamwork of a fleet of ready-mix trucks, plus some accurate and agile work on the part of Case crews in drilling, inspecting, and readying the caisson shafts.

Five and sometimes six trucks placed concrete simultaneously in each shaft, unloading as much as 250 yards in a single day. A total of 94 caissons, ranging in diameter from 30 inches to 5 feet 6 inches, was installed on this project.

Write to the Case Foundation Co., Dept. C&E, Box 298, Roselle, Ill., or circle No. 62 on Request Card at page 18.

New one-year warranty on Ramset tool line

■ Ramset Fastening System, New Haven, Conn., a part of the Winchester-Western Division, Olin Mathieson Chemical Corp., has announced a new one-year warranty on Jobmaster powder-actuated fastening tools. The warranty replaces a previous 90-day warranty.

The following models will be guaranteed for one year against defects in workmanship and material: 122 MD; 122 FC MK-I; 122 FC MK-II; and 238M.

Clark appointments

■ Clark Equipment International, C. A., overseas subsidiary of Clark Equipment Co., Buchanan, Mich., has appointed William Ray Tanner sales promotion and advertising manager, with headquarters in Brussels, Belgium.

Fred Dolton has been named manager of account sales for Clark's Michigan line of construction machinery. He was formerly national account sales representative for the firm's Construction Machinery Division.

◀ For more facts, use Request Card at page 18 and circle No. 261

There's a type and size just right for your job!

R-10 10 TONS
R-15 15 TONS
R-18 18 TONS
R-22 22 TONS
R-27 27 TONS
R-45 45 TONS
R-62 62 TONS

PLUS

12, 22 and 35-TON Semi-Trailer Rear-Dumps

Whatever your off-highway hauling work may be—heavy construction, mine, quarry and industrial jobs—there's a job proved "Euc" that can cut your costs and step up production. With unmatched field experience and parts and service facilities of a world wide dealer organization, Euclid Rear-Dumps meet today's requirements for big performance on the toughest jobs.

For facts and figures proof that "Eucs" can mean lower costs on your work and are your best investment, call the Euclid dealer that serves your area.

EUCLID Division of General Motors, Cleveland 17, Ohio
Plants at Cleveland and Hudson, Ohio and Lanarkshire, Scotland

GM GENERAL MOTORS EUCLID

EUCLID

FOR MOVING EARTH, ROCK, COAL AND ORE

Difficult loading job calls for special rig

Ulland Bros., Duluth, Minn., was awarded a contract to load out 450,000 yards of sand from a lake, then load the sand into trucks.

In spite of efforts to drain off the water, much of it remained in the stockpiled sand. With the combination of abrasive material and standing water puddles, Ulland ruled out crawler-mounted front-end loaders because of high track maintenance.

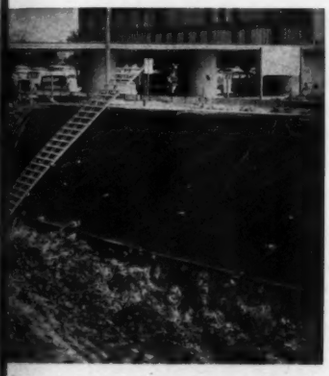
Then a rubber-tire front-end loader was tried alongside a Koehring 205 Skooper. The Skooper loaded three trucks to two for the front-end loader.

On the strength of production of its first Skooper, Ulland Bros. bought another. The firm points to the high production figures chalked up, along with low maintenance costs, as reasons for their purchase of the second rig.

Write to the Koehring Co., Koehring Division, Dept. C&E, 3026 W. Concordia Ave., Milwaukee 16, Wis., or circle No. 150 on Request Card at page 18.

Polyethylene tarps prove low-cost erosion barrier

The Fretz Construction Co., Houston, has found Griffolyn fabric film tarps a low-cost device for holding in soil moisture and preventing erosion. Griffolyn tarps measuring 16 × 20 feet were used on the sides of the



Griffolyn fabric film tarps provided this contractor with an economical means of holding in moisture and preventing erosion on this excavation.

15,000-square-foot excavation for the new 16-story Fannin State Bank building in Houston.

Officials of the contracting firm report the tarps cost only a fraction of the cost of canvas tarps previously used.

Fretz's vice president and general field superintendent, Ed A. Fretz, Jr., said the Griffolyn polyethylene tarps, in addition to being economical, have worked out "very satisfactorily," possessing great tear strength due to a nonwoven grid of nylon tire cord.

Write to the Griffolyn Co., Inc., Dept. C&E, 6813 Dixie Drive, Houston 17, Texas, or circle No. 151 on Request Card at page 18.

Registrations of motor vehicles in the U. S. during 1960 totaled 73,895,274, according to the Bureau of Public Roads. This is a gain of 2.4 million over 1959 at a 3.3 per cent rate of increase.

Trucks are kept moving with two Skoopers loading out sand. Ulland Bros. of Duluth, Minn., found Skooper maintenance low, production high in this wet, abrasive material.

AISC receives award

■ The American Iron and Steel Institute, New York, N. Y., was recently awarded a plaque by the National Workshop Directors Conference for leadership in establishing more than 150 community-resources workshops for teachers in the United States.

The workshops are college-conducted programs aimed at better acquainting teachers with resources of their community that can be used in classroom teaching.

Bricklayer apprentices now learn welding as a part of their trade, due to the introduction of prefabricated brick walls that are welded into place during erection.

It's here! New HEAVY-DUTY STOPMASTER BRAKE

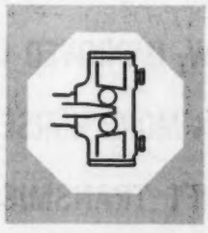
Biggest News in Brakes for Off-Highway Equipment in over 30 years!

To meet the growing need for more versatile, more compact, more dependable braking equipment in off-highway operations, Rockwell-Standard® now presents a completely new concept in brake design.

This new brake is specifically engineered for use on scrapers, prime movers, earth and rock wagons, dump trucks and similar construction vehicles. Available in 17, 20¼, 22 and 26-inch diameters and in 4 to 10-inch widths.

If it's a Stopmaster you get . . .

- Reduced Operating Cost
- Less Heat Fade
- Greater interchangeability of parts
- Heavy Duty ¼ inch tapered Econoliners®
- Adjustment frequency reduced
- Rugged Design
- Extended Drum Life



Only the Heavy-Duty Stopmaster offers:

"BALANCED DESIGN" AND NEW ACTUATION PRINCIPLE

Results in improved braking performance and lower operating temperatures. In Dual-Actuation design, both shoes do an equal amount of work. Balanced shoe-action assures more dependable service; faster, surer stops.

HYDRAULICALLY OPERATED

New hydraulic cylinders offer more compact design and increased mounting flexibility for better protection. External cylinders, located outside of drum, eliminate heat damage and overheating of fluid. For air-over-hydraulic systems, air volume requirements are considerably less. Actuation time is reduced, with faster response of hydraulic system. The Stopmaster Brake is well suited for straight hydraulic, air-over-hydraulic, or vacuum-over-hydraulic operation.

Another Product of...

ROCKWELL-STANDARD CORPORATION

Brake Division, Ashtabula, Ohio

For more facts, use Request Card at page 18 and circle No. 262

Donald C. Taylor

C&E adds Donald C. Taylor as eastern field editor

■ Donald C. Taylor joined the C&E staff as eastern field editor in May of this year. Taylor, originally of Nutley, N. J., had been living in Woburn, Mass., where he was employed by Metcalf & Eddy, Consulting Engineers, Boston, Mass.

After receiving a degree in civil engineering from Lehigh University, Taylor continued his studies at Massachusetts Institute of Technology where he received the degree of M. S. in civil engineering. He spent two years as a lieutenant in the U. S. Army Corps of Engineers, with most of his service in troop duty with division engineer units at Fort Carson, Colo. Taylor has also worked for other contracting and engineering firms on various construction projects. He is married and has two children.

Nordberg division names new manager

■ Howard L. Phillips is the new manager of the International Division of Nordberg Mfg. Co., Milwaukee, Wis. He will be responsible for all functions of the export sales department and for the administration of overseas branches, foreign manufacture, and license agreements. He previously served as export sales manager and assistant export manager for the company.

Sales representative named by Duff-Norton

■ J. D. Macklin has been named a sales representative for Duff-Norton Co., Pittsburgh, Pa., producer of industrial jacks and hoists.

Macklin will handle hoist sales in Minnesota, North Dakota, and South Dakota and will be responsible for sales of jacks and hoists in Iowa and Nebraska. His headquarters will be in Minneapolis.

Universal Atlas appoints

■ Robert G. Watson is the new sales manager of the Albany, N. Y., District, Universal Atlas Cement Division of U. S. Steel Corp., New York, N. Y. He was formerly technical service manager in the New York City office.

U. S. building construction sees

New gains by towe

Tower and climbing cranes—those tall, slim, graceful giants that dominate the European building scene—have also had considerable impact on building construction in the United States. Since their introduction here only a few years ago, their use by American contractors has become increasingly widespread.

Currently, three tower cranes and three climbing cranes manufactured in Europe are being imported and distributed here by American manufacturers. In addition, a well known American manufacturer of cranes and shovels last year announced its own tower crane—the first and so far the only one to be made in this country.

Probably the best known of the European tower cranes is the Liebherr, manufactured in Biberach, West Germany. According to the company's own estimate, it is the largest crane manufacturer in the world. Already well known in this country, it is now being imported and distributed here by Harnischfeger Corp. of Milwaukee.

Within the last few months, Harnischfeger officials announced the signing of a marketing agreement with Liebherr Ltd. of Killarney, an Irish branch of the German company. Harnischfeger will also distribute a Liebherr climbing crane, and both will bear the familiar P&H trademark of the Milwaukee firm.

NEW, IMPROVED CAT 619...SERIES C...ALL NEW 4-CYLINDER ENGINE... 24% MORE HORSEPOWER...COMPACT...ECONOMICAL...CHOICE OF POWER SHIFT TRANSMISSION, DIRECT DRIVE...COMPLETE UNIT CONSTRUCTION...EASY SERVICING...NEW TIRE SIZE...AIR ACTUATED, LIVE POWER CABLE CONTROL...IMPROVED 18 YD. (14 YD. STRUCK) SCRAPER.

Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

ADVANCED AS TOMORROW —CERTAIN AS YESTERDAY

...limbing cranes

Another popular German tower crane, the Peine, is also in use in this country. It is being imported and distributed by the American Pecco Corp., White Plains, N. Y., and bears the trade name Pecco.

A German-made climbing crane, the Schwing, is being distributed here by Vibro-Plus Products, Inc., Stanhope, N. J. A German news magazine recently reported that the Schwing company is preparing to set up an assembly plant in the United States.

Another climbing crane—this one a Danish-made rig called the Linden crane—is being distributed here by B. M. Heede, Inc., Long Island City, N. Y. The crane carries the trade name Concretor-Linden.

A French-made tower crane known as Mayco-Weitz is being distributed in this country by Tubular Structures Corp. of America, Los Angeles. The crane is manufactured in Europe by the Weitz Co., a division of Richier—one of Europe's largest manufacturers of heavy-construction equipment.

The first American-made tower crane is the Mark I-50, an electric-powered rig announced late last year by the Bucyrus-Erie Co., South Milwaukee, Wis. In addition to incorporating the basic features of the European tower cranes, this "local" product is reported to provide higher standards of performance in line with traditional U. S. industry requirements.

It is generally agreed both here and in Europe that the increasing use of concrete in buildings has created a wide market for the tower and climbing cranes. Rather than the ability to lift heavy members, their forte is the ability to reach out across the building and spot concrete with maximum operator control.

The tower or slewing crane rides a track around the outside of the building, and can therefore reach across to any part of the project. The climbing crane, somewhat similar to the familiar derrick long in use here, works from a fixed position in the center of the building and pulls itself up as the structure rises.

For further information on any of these cranes, check with the companies listed below:

Mark I-50 tower crane—Bucyrus-Erie Co., South Milwaukee, Wis.

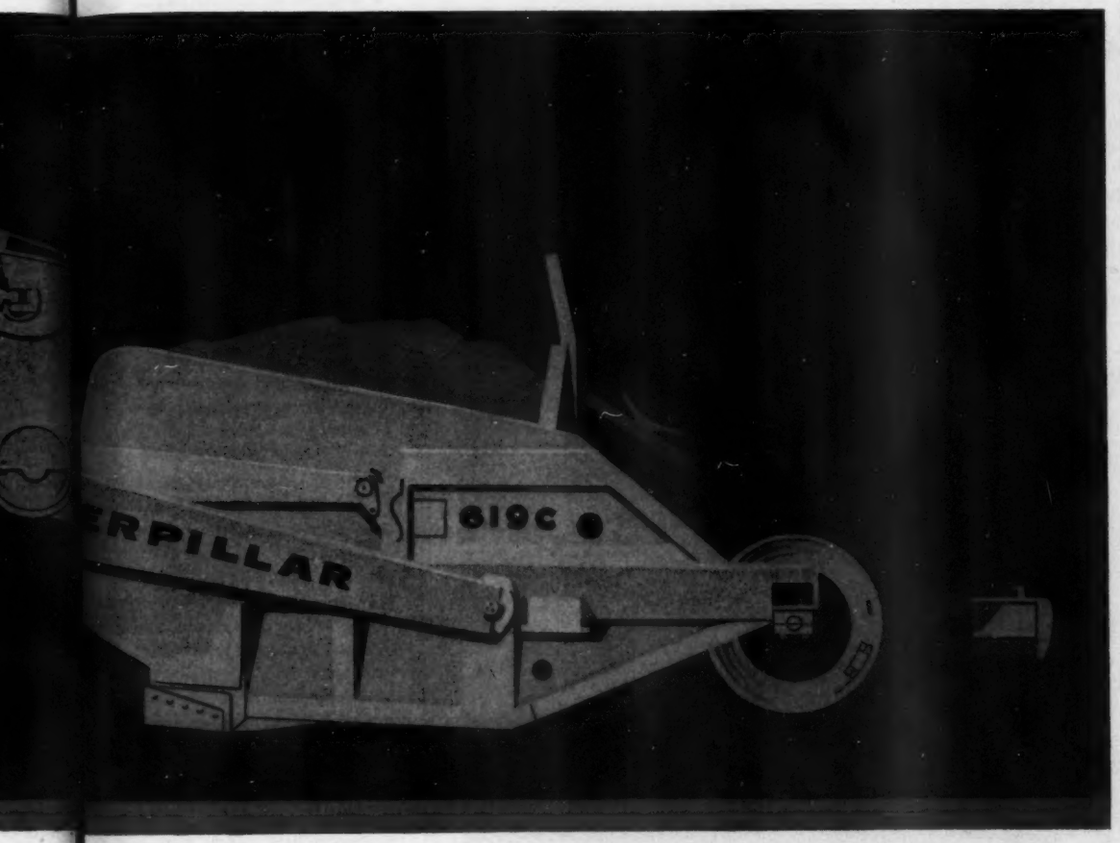
Liebherr (P&H) tower crane and climbing crane—Harnischfeger Corp., 4400 W. National Ave., Milwaukee 46, Wis.

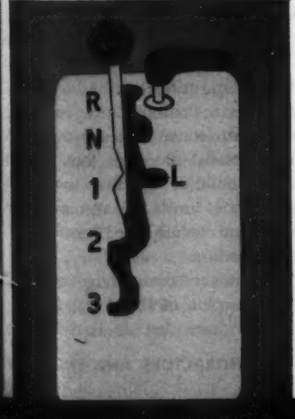
Pecco tower crane—American Pecco Corp., 188 E. Post Road, White Plains, N. Y.

Mayco-Weitz tower crane—Tubular Structures Corp. of America, 4560 Sperry St., Los Angeles 39, Calif.

Concretor-Linden climbing crane—B. M. Heede, Inc., 30-01 37th Ave., Long Island City, N. Y.

Schwing climbing crane—Vibro-Plus Products, Inc., Box 368, Stanhope, N. J. THE END

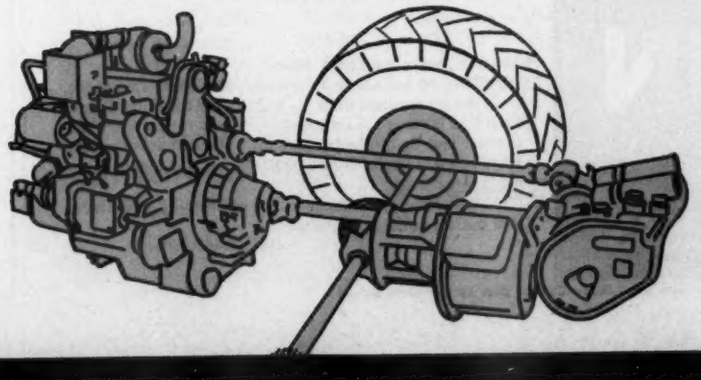




New 280 HP 619C offers choice of power shift transmission for faster, easier operation or direct drive transmission. Air actuated, live power cable control reduces operator effort. New, bigger 26.5 x 29 (22 ply) tires improve roadability. Top speed: 30 MPH. Capacity of matching Lowbowl scraper: 18 cu. yd. heaped, 14 cu. yd. struck. Also available: 25 ton PR619 Rear Dump Trailer built by Athey Products Corp.

New power shift transmission provides 9 speeds forward with just 3 shifts. One lever gives operator instant selection of 3 speed ranges . . . dial indicator tells him **when** to shift. Within each speed range, transmission **automatically** shifts to torque divider drive, direct drive or overdrive to match job conditions. The 619C with power shift transmission always operates at the right speed and power for the job at hand.

New, more powerful Cat D340 Engine (280 HP maximum, 250 HP flywheel at 1900 RPM). This economical 4-cylinder engine burns No. 2 fuel oil . . . has parallel-ported dual intake and exhaust valves and overhead camshafts for most efficient operation . . . has pressure ratio controlled turbocharger and aftercooler. Swingaway dash and pivoted crankcase guard simplify servicing. Unit construction assures easy servicing: engine, transmission, planetary final drives can be removed without disturbing adjacent components.



AISI awards medal

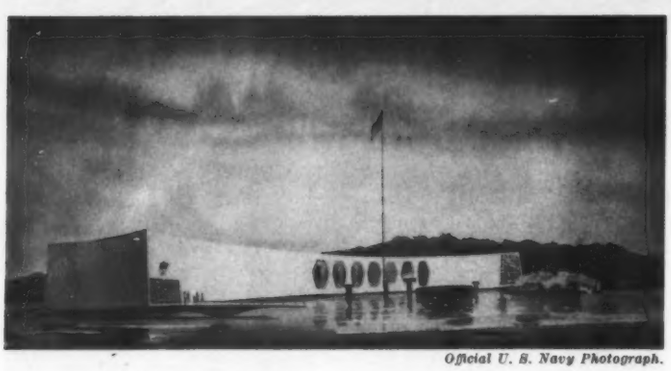
A. L. Hodge, of the Linde Co., division of Union Carbide Corp., has been awarded the American Iron and Steel Institute Medal for his paper "Predicting Effects of Oxygen, Moisture and Fuel Additions on Blast Furnace Operation with Electronic Computers," which was delivered at last year's general meeting of the institute.

The award was presented at the institute's recent 69th general meeting in New York City.

Austin-Western promotes

■ Ronald C. DesJarden has been promoted to district sales manager for Ohio, Indiana, Michigan, and Kentucky, by Austin-Western, Construction Equipment Division, Baldwin-Lima-Hamilton Corp., Aurora, Ill. He will supervise sales activities for several A-W distributors, including R. G. Moeller, of Michigan; Rish Equipment Co., of Ohio and West Virginia; and the Reid-Holcomb Co., Inc., of Indiana.

◀ For more facts, use Request Card at page 18 and circle No. 263



Official U. S. Navy Photograph.

The U. S. S. Arizona memorial for crewmen who lost their lives in the ship at Pearl Harbor in 1941 is supported on two piers of 18 precast-concrete piles on either side of the ship. Prestressed-concrete girders span 184.5 feet to support a precast-panel deck topped with concrete. The integral superstructure remains to be built.

Prestressed girde

by ALFRED A. YEE, structural engineer, Alfred A. Yee & Associate
914 Ala Moana Blvd., Honolulu 14, Hawai

Two huge precast, prestressed-concrete girders, 184.5 feet long, span the width of the sunken U.S.S. Arizona in Pearl Harbor to support deck and superstructure of a memorial shrine to the Navy and Marine Corps crewmen who lost their lives when the battleship went to its watery grave.

The shrine is being built in two increments. The first was completed and dedicated on December 7, 19 on the 19th anniversary of the attac on Pearl Harbor. This increme consists of the piling, caps, girder and deck of the structure. The in tegral superstructure will be built a a future date.

When completed, the memoria will house an assembly area for flag raising ceremonies that will be larg enough to accommodate 200 persons a museum containing salvaged me mentos of the Arizona, and a shrin with a plaque inscribed with th names of the men entombed in th ship.

Visitors will enter the memori from two boat landings projectin from either side of the structure. Th present concrete mooring blocks o the Ford Island side of the Arizon will be landscaped.

The impressive World War II me morial, sponsored by the Pacific War Memorial Commission, is financed b the nickels, dimes, and dollars do nated by generous Americans acro the nation and by visitors to Pear Harbor from all over the world.

Supported on two piers

The structure spans the 95-foot wide hull of the Arizona and canti levers out beyond the piers on both sides of the ship. Each pier consist of 18 precast-concrete piles with a cast-in-place concrete cap.

Each of the girders was cast in two sections, which were set in place on the piers by a big floating derrick. A 6-foot closure section was cast in place between the precast girder halves. Prestressing cables were then strung through and tensioned in tubes that extended the entire length of each girder.

Precast deck panels were laid be tween the girders to form the deck which was finished with a 2-inch cast-in-place concrete topping.

Bids exceed available funds

The design of the memorial wa prepared by the architectural firm of Johnson & Perkins-Preis & As sociates, Honolulu, and plans and specifications were prepared for con struction of the first increment by contract. However, when the bids were opened in June, 1960, the low bid exceeded the amount of money available, and all bids were rejected.

At the request of the memorial commission and Rear Adm. E. A. Solomons, Commandant of the Fourteenth Naval District, the Pearl Harbor Naval Shipyard took on the task of building the first increment within the limits of the available funds and before the December 1960, deadline.

The shipyard commander requested a modification of the design to per mit the precasting of half-section

MOTO-LOADER® MANEUVERABILITY PAYS OFF IN TIGHT QUARTERS This Lorain Moto-Loader, Model ML-157, with a 2-yd. bucket, is a work horse for owner Clifford Jensen of Eagle, Wisconsin. It is shown working in close quarters mucking-out a cave-in during construction of a pumping station. It also is used as a push tractor for pans, for pulling compactors, digging and loading out gravel, for snow removal and for handling scrap iron in ship holds. The ML-157 can be versatile for you too, wherever you need its power, stamina, balance and maneuverability. In tight quarters like this, the value of its one-foot control of forward and reverse travel is evident. Leaves both hands free for other controls. Speeds up cycles, contributes to accurate control. And Lorain power steering, full power-shift transmission, the traction effort possible only with planetary axles, proper weight-to-axle balance and finger tip bucket controls add still further to job-handling speed . . . plus, as owner Jensen says, "I find it very convenient to drive between jobs." Why not get the full story today from your nearby Lorain Moto-Loader distributor.

THE THEW SHOVEL COMPANY, LORAIN, OHIO

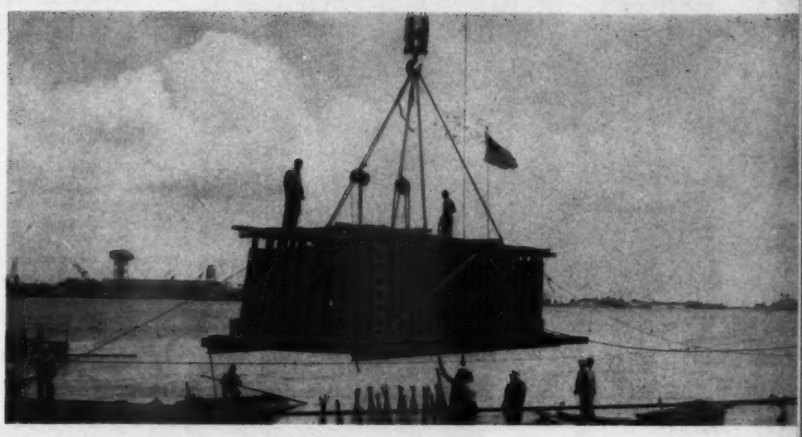
LORAIN

DOES MORE
FASTER • FOR LESS

PLANTS in Lorain and Elyria, Ohio.
PRODUCTS—Power shovels, cranes, draglines, clamshells, and hoes on crawlers from ⅜- to 2½-yard capacity • Cranes from 7 to 80 tons . . . on crawlers, and as rubber tire Moto-Cranes, and Self-Propelled Cranes • Rubber tire front-end Moto-Loaders in 6,000-lb., 7,000-lb., and 9,000-lb. operating capacities.
OUTLETS—Lorain products sold and serviced by 249 distributor outlets throughout the world.

For more facts, use Request Card at page 18 and circle No. 264

arry memorial
f U.S.S Arizona



A prefabricated pier-cap form is set by a 170-ton floating rig. Reinforcing from the piles projects out of the water at the pier location. Because of limited funds available from donations, the Pearl Harbor Navy Shipyard handled the work.

Official U. S. Navy Photograph.

of the longitudinal girders on land and setting them in place with the floating crane. The details of this design modification were developed by the structural engineering firm of Alfred A. Yee & Associates. While the redesign was being made, the Naval Shipyard forces proceeded to build the piers.

Drive long prestressed piles

The big 170-ton floating crane assigned to the job used a McKiernan-Terry S-8 steam hammer in 110-foot leads to drive the 18 foundation piles for each of the piers. These are 16-inch hexagonal prestressed-concrete piles averaging 170 feet long. To obtain this length, 110-foot piles were driven part way and 85-foot extensions were spliced on by the can-and-dowel method. A heavy steel dowel fits into holes in the center of each section of the pile, and a heavy steel collar fits over the outside, extending 3 feet each way from the joint.

Once the driving of these long piles started, there was no stop—except for the splicing—until a bearing value of 60 tons was attained. The average driving time was about six hours per pile, and the average length to cutoff was about 170 feet.

The 18 piles of each pier are capped with a big concrete cap containing 54 cubic yards of concrete. The form, built of ¾-inch plywood backed by 2 × 6 studs tied across at both top and bottom, was completely prefabricated on a dock and set in place by the floating crane. The concrete was barged to the site and placed by the crane with bottom-dump buckets.

Girders cast on dock

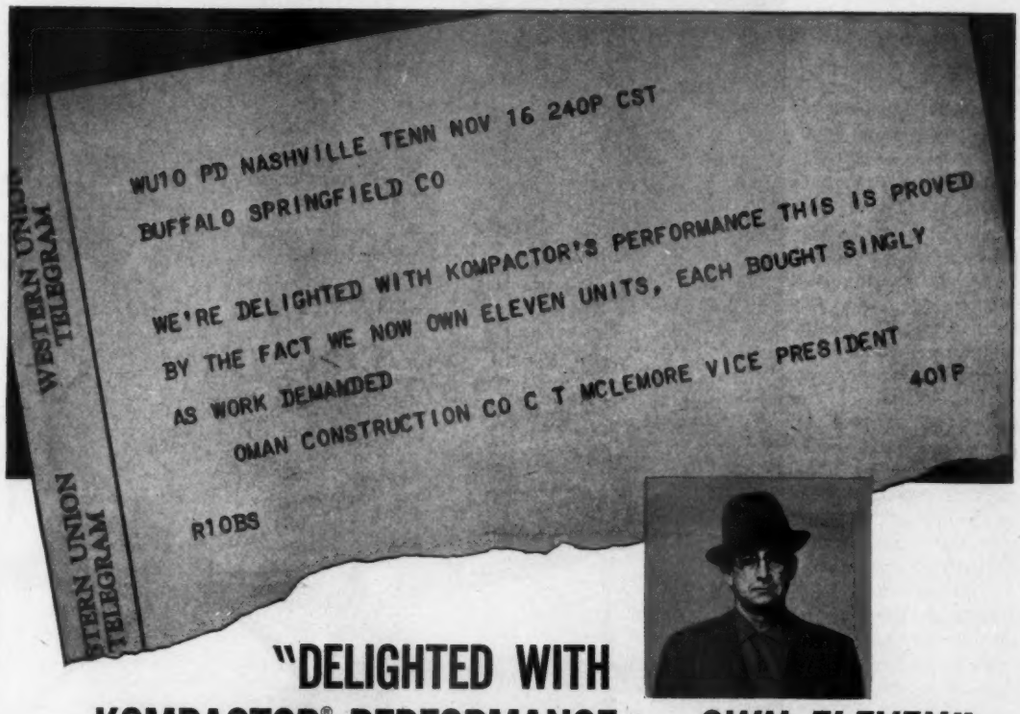
To produce the four big half-girders, the Pearl Harbor Naval Shipyard set up a casting yard on Pier B7 across the harbor from the memorial site. A re-usable plywood and lumber form was built on the dock, and the four half-girders were cast in the same form.

In addition to the conventional reinforcing in the girders, there are 26 tubes for housing post-tensioning strands. These 2½-inch tubes run the full length of the girders. Each half-girder also had three 6-inch vertical tubes to receive the positioning dowels on the piers.

Because of the forest of reinforcing and tubes, a special concrete mix was designed that excluded the coarse aggregate. The 3-inch-slump mix contained varying amounts of Sika Plastiment admix to adjust the fluidity of the concrete, to control the internal heat and setting time, and to permit revibration.

As successive lifts of concrete were

(*Continued on pages 26 and 27*)


WESTERN UNION TELEGRAM
WU10 PD NASHVILLE TENN NOV 16 240P CST
BUFFALO SPRINGFIELD CO
WE'RE DELIGHTED WITH KOMPACTOR'S PERFORMANCE THIS IS PROVED
BY THE FACT WE NOW OWN ELEVEN UNITS, EACH BOUGHT SINGLY
AS WORK DEMANDED
OMAN CONSTRUCTION CO C T MCLEMORE VICE PRESIDENT
401P
R10BS
WESTERN UNION TELEGRAM

"DELIGHTED WITH KOMPACTOR® PERFORMANCE . . . *OWN ELEVEN*"

says C. T. McLEMORE, Vice President, Oman Construction Co.

Many cost-conscious contractors, like Oman Construction Co. have found Kompactor the practical answer to meeting density requirements. It's self-propelled, operates on an interrupted pressure principle that delivers the compaction you need in less time and with fewer passes. You get more uniform density. There's no displacement of materials due to "bulldozing" ahead of the wheels. And with Kompactor, you can wheel in tight to culverts, walls, and abutments — eliminate a lot of costly hand tamping work. Cost of compaction with Kompactor: About two cents per yard. See your distributor.

Road-to-Basement — *Oman Kompactors on highway job, and compacting fill in building basement show extreme versatility of machine. Each pad segment exerts pressure of 580 lbs. per lineal inch for total length of pad.*

BUFFALO-SPRINGFIELD COMPANY
Springfield, Ohio

A Division of KOEHRING *Company*

B103

For more facts, use Request Card at page 18 and circle No. 265

The 54 yards of concrete for each pier cap was barged to the site and placed by the crane-and-bucket method. The form is of ¾-inch plywood backed by 2 × 6 studs tied across at top, bottom.
Official U. S. Navy Photograph.

Design modifications allowed half-girders to be cast on a dock in plywood and lumber forms. The 170-ton floating crane has picked a half-girder from the form and is setting it on the crane deck for towing to the memorial.
Official U. S. Navy Photograph.

The heavy half-girder is lowered over positioning pins on the pier cap. The inboard end, left, is supported on falsework built up from the deck of the Arizona. Another girder can be seen, background.
Official U. S. Navy Photograph.

The crane slacks off its lines, and the girder is set on falsework and pile bent. Note the multipoint pickup arrangement that enabled the crane to pick up the heavy girder without damaging it before stressing was done. In the foreground and at right are sections of the Arizona's superstructure.
Official U. S. Navy Photograph

(*Continued from page 25*)

placed, the previous lifts were revibrated for greater consolidation, to open bleeding channels, and to free water from around the steel.

Not one case of honeycombing, spalling, or shrinkage cracking was evidenced in the four sections as the girders were lifted from the forms. Strengths in 14 days were in excess of 6,000 psi, the 28-day requirement.

Five days after the casting of the concrete, the 170-ton floating crane picked a 130-ton half-girder out of the form and placed it on the crane's deck while the big rig was towed across the harbor to the memorial site. Here, the crane placed the half-girder on the positioning pins of the cap. The inner end rested on cribbing built up from the deck of the Arizona, and the cantilevered outer end on a pile falsework bent.

This operation was so well planned and so skillfully handled that the total elapsed time from taking hold to lift the girder out of the form until it was in place on the pier averaged less than five hours.

When the half-girders were set, a 6-foot closure section between the halves was formed and cast in place. This section contained the 26 longitudinal tubes for the prestressing steel, connecting the tubes in the precast halves, as well as the conventional reinforcing.

The prestressing cables, each consisting of eight 7/16-inch strands, were pulled through the tubes, stressed to a total force of about 160,000 pounds each, and anchored. Grout was pumped in to fill the voids.

The shipyard sublet this prestressing operation to the Concrete Engineering Co., Honolulu, which supplied all of the prestressing materials.

When both of the girders had been stressed, a floor of 4-inch precast, prestressed slabs was laid between girders to form a platform, which was finished with 2 inches of concrete.

The superstructure, which will complete the memorial, will be advertised for bidding as soon as sufficient funds are available.

Capt. C. H. Thompson, CEC, USN, was resident officer in charge of construction. Murray Holt of the Shipyard Public Works Department was project manager. Capt. N. M. Martinsen, CEC, USN, Fourteenth Naval District Public Works officer, was in charge of construction. THE END

DUMP CYLINDERS STAY OUT OF THE DIRT

On all Allis-Chalmers tractor loaders dump cylinders are placed near the center of gravity, out of the dirt and grit that can score piston rods . . . damage entire hydraulic system.

Instead of mounting dump cylinders on the bucket, Allis-Chalmers puts them up and away from abrasives that can cause scoring of piston rods or get into vital hydraulic components and ruin the entire system. In addition, this dump cylinder location brings greater loader stability . . . no extra weight to lift with bucket . . . fewer moving parts.

Other tractor loader advantages you'll like are: *Single lever speed and direction control; pin-connected axles* that hold tight under load; *extra stability* from extra-long wheelbase; *high lift—added reach* for fast, even dumping even into side-boarded trucks; and *5-way hydraulic filtering* protection that means less downtime . . . extended loader life.

Watch Allis-Chalmers loaders at work. Be convinced of their many design and construction advantages that improve your profit picture. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

Allis-Chalmers offers 6 tractor loader models—ranging in power from 76.5 to 184 horsepower—in carry capacity from 3,600 to 10,500 lb and with buckets available from 1 to 6 cu yd.

STEP UP YOUR

Performance
Operator comfort
Wearability
Ease of maintenance
Reliability

WITH **ALLIS-CHALMERS**
POWER FOR A GROWING WORLD

For more facts, use Request Card at page 18 and circle No. 266

Manufacturer Memos

For more facts on insert, use Request Card at page 18 and circle No. 269

Perfect Circle Corp., piston-ring manufacturer of Hagerstown, Ind., has appointed **Drex D. Minshall** vice president of marketing.

Minshall was formerly manager of automotive and hardware sales for the Gates Rubber Co., Denver, Colo.

Dean W. Detweiler has been named manager, relations services. In this post, he will direct projects and activities in public relations, employee communications, stockholder relations, and relations with other groups for the company.

For the past ten years, Detweiler has been manager of employee communications.

Albert G. Crockett has been elected a vice president of **Mack Trucks, Inc.**, Plainfield, N. J. Formerly general sales manager, he will continue to direct sales and service operations of the company's factory branches and distributor outlets, as well as its advertising and sales-promotion programs.

A. C. Gossard has been appointed by **Iowa Mfg. Co.**, Cedar Rapids, Iowa, to succeed executive vice president **Kenneth Lindsay** in directing all domestic sales and advertising.

Gossard has been vice president and domestic sales manager since 1954.

William F. Foss has been elected senior vice president for finance and international operations of **Motec Industries, Inc.**, Hopkins, Minn. He will continue as treasurer and chairman of the operating committee of the firm.

James A. Miller, director of engineering, has been named vice president in charge of engineering research and development.

W. L. Pringle has been promoted to vice president for the Minneapolis-Moline Farm Equipment and Mocraft Power Tool divisions, and will direct all sales and marketing activities of the two divisions.

Marshall E. Munroe, Jr., director of procurement, has been elected a corporate vice president.

David E. Thorn has been appointed materials engineer, Engineering and Research Division.

Universal Form Clamp Co., Chicago, Ill., has made several new appointments.

Gary Cass has been named sales manager. **Charles Sharay** has been appointed district sales manager for Illinois and surrounding states. **Robert Koll** is now chief engineer. **Wallace Kluge** has been named to the Chicago-area sales staff.

The new southwestern district representative for **Essick Mfg. Co.**, Los Angeles, Calif., is **Clifford Durant.** He will work with distributors of Essick construction and road-building machinery throughout California, Nevada, Arizona, Colorado, Utah, and New Mexico.

Taylor-Wharton Co., division of Harsco Corp., High Bridge, N. J., has appointed **Robert A. Herstine** to its sales staff. Before joining Taylor-Wharton, Herstine was employed by Bethlehem Steel Co. and Bethlehem Fabricators.

Taylor-Wharton is a manufacturer of manganese and alloy-steel castings.

Lincoln Engineering Co., St. Louis, Mo., a division of McNeil Machine & Engineering Co., Akron, Ohio, has made several management promotions.

Carl Mueller, formerly director of engineering, has been appointed general manager of the division. He will be succeeded in his former post by **Lutwin Rotter** who has been chief engineer.

John Renner has been named general sales manager of the Lincoln Division and assistant treasurer of McNeil.

Elmer Rittel, previously office manager at Lincoln, has been appointed assistant secretary of McNeil. William **Schurk**, formerly assistant automotive sales manager, replaces Rittel as office manager.

Theodore Picraux is now production manager and administrative assistant to the executive vice president.

Carl Westerhaus, formerly assistant personnel director, has been appointed director of personnel.

The **Clark Equipment Co.**, Buchanan, Mich., has elected **Walter E. Schirmer** executive vice president. Schirmer has been a vice president of the organization since 1947, and has served as president of Clark Equipment International, C. A., since 1958.

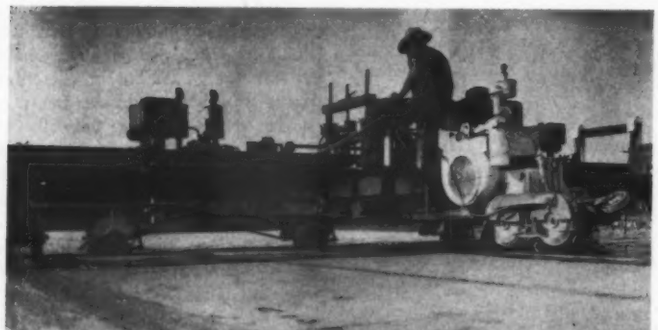
R. W. Simon has been named vice president—metallurgy of **U. S. Steel Corp.**, New York, N. Y. Previously, he was chief metallurgical engineer, operations—steel. He replaces **L. J. Rohl**, who has retired.

DIAMOND BLADE SAWING OF CONCRETE

Case Report: PENNSYLVANIA Hwy.

COST-$.073 per linear foot

TYPE OF WORK—Pennsylvania Highway
AGGREGATE—Slag aggregate
SAWING OPERATION—Center line only was sawed—all sawing done with diamond blades.
DIMENSIONS—Longitudinal 3" x 3/16".



The case history cited above is typical of diamond blade sawing on concrete highway and runway projects. The cost-per-linear-foot figure is all-inclusive, accounting for labor, equipment, diamond saws, overhead and profit.

Diamond blade sawing makes possible significant reductions in time and labor costs. Precisely controlled joints are cut by high-speed, semi-automatic procedure—maintaining maximum concrete strength and homogeneity in the joint areas—without interfering with or delaying the actual paving operation.

The economy of diamond blade sawing is even more interesting and impressive to the maintenance engineer. He has learned that *sawing is producing the only joint that has proved reduction in maintenance costs.* Further, these savings are running as high as 50%!

Modern diamond blade sawing results are a matter of record based on performance in many states.
For detailed information and field-use reports from state highway officials and contractors, write to Engelhard Hanovia, Inc., for Report #101.

Engelhard Hanovia, Inc. is the leading supplier of SND-MB diamond abrasive, a result of research that has greatly increased diamond cutting efficiency, to diamond blade manufacturers

★ENGELHARD HANOVIA, INC.★
INDUSTRIAL DIAMOND DIVISION
113 ASTOR STREET • NEWARK 2, NEW JERSEY

For more facts, use Request Card at page 18 and circle No. 267

. . . drill through hardest masonry at high speed

Reduce Job Costs with . . .

HOFFMAN

Diamond MASONRY CORE BITS

Drill right through hardest reinforced concrete, tile, asphalt, etc. Cut holes to exact size on first pass. From ¾" to 14" dia. Hoffman Bits are Diamond Impregnated or Surface Set . . . fit any machine . . . assure fast, easy installation of conduit, piping, air-conditioning units, etc.

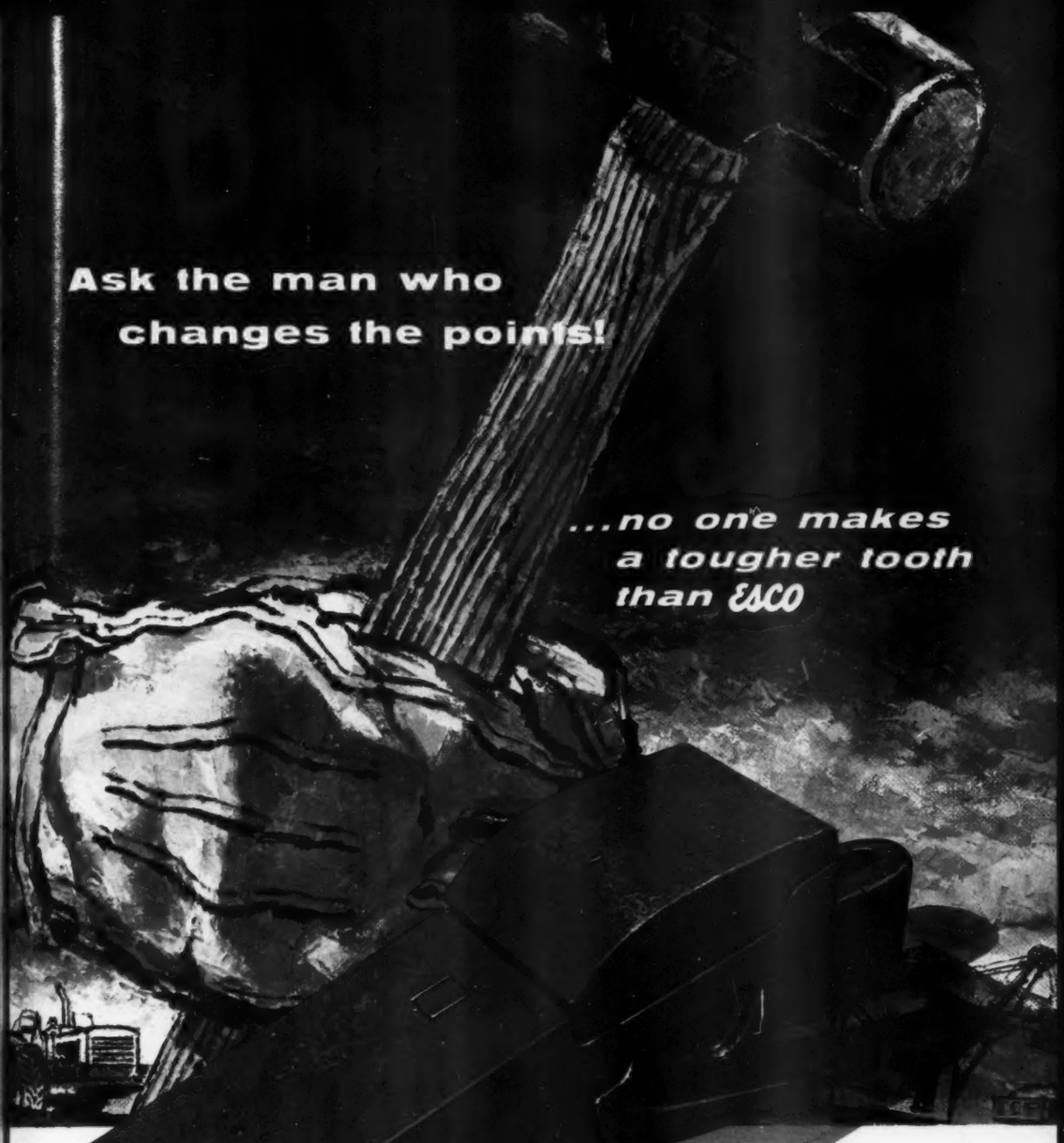
Hoffman Bits drill 1" to 2" deep per minute on modern equipment like this new "Roto-Kor" Drilling Machine.

Kor-It Model 600 Machine swivels full 360° for any angle drilling of 1" to 5½" dia. holes.

Write for Literature and Prices—FREE. Ask for Information on Hoffman Diamond Segmented Circular Saws for cutting concrete, granite, etc.

HOFFMAN BROS. DRILLING CO.
BOX 426, PUNXSUTAWNEY, PA.

For more facts, use Request Card at page 18 and circle No. 268



The earth moving industry looks to

ESCO®

The right design, the right steel, the right shape make *ESCO* Two Piece Teeth right for every digging condition.

ESCO Corporation
PORTLAND, OREGON and DANVILLE, ILLINOIS

See reverse for shapes and size range >

Here are the points to remember...

Each easy-to-change ESCO Point is Brinell tested to assure exactly the right degree of shock-absorbing toughness and abrasion-resisting hardness for longer life. Abrasion resistant Wear Caps (illustrated) extend adapter life.

12M ALLOY STEEL

ESCO 12M Two Piece Teeth are the toughest you can use. Developed through years of research for the earth moving industry, cast *ESCO* 12M is the finest steel made for severe shock and abrasion.

ESCO TWO PIECE TEETH
for all your digging equipment

Your *ESCO* dealer can supply two piece teeth for all your equipment. Consult him about standardizing on *ESCO* teeth for the added advantages of quantity purchasing and reduction of on-the-job inventories.

WEAR CAP ADAPTERS

The ESCO Wear Cap Adapter, winner of the Blue Ribbon Mining Award, is the most rugged tooth assembly ever developed for handling tough rock and taconite. Replaceable wear caps sharply increase service life by protecting the adapter from wear. No special pins or welding required.

8 POINT TYPES
FOR EVERY DIGGING CONDITION

GENERAL PURPOSE | ROCK | ROCK PICK | PICK | SHARP FLARED | SHARP | SHARP LONG | RIPPER

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MFG. PLANTS AT PORTLAND, ORE. AND DANVILLE, ILL.
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LITHO IN U.S.A.

Distributor Doings

New Kwik-Mix dealers

The Kwik-Mix Co., Port Washington, Wis., a division of Koehring Co., has appointed five new distributors.

Aztec Equipment Co., 321 S. 27th Ave., Phoenix, Ariz., will handle sales and service in that state on the complete line of Kwik-Mix bituminous, plaster-mortar, and concrete mixers, Moto-Bug material handlers, and the Hi-Lifter, a material-handling unit designed for outdoor use.

Malette Construction Equipment Co., 700 Seymour St., Sault Ste. Marie, Mich., will handle this equipment in upper Michigan and the northern part of lower Michigan.

Paynter Equipment Co., 1734 Cass St., Green Bay, Wis., will cover the northern half of Wisconsin and the Upper Peninsula of Michigan. In addition to mixers and material handlers, it will sell and service Ka-Mo boring equipment.

Anderson Equipment Co., 13th and Farnum Sts., Omaha, Nebr., is the dealer for KA-MO horizontal, angular, and vertical earth boring and drilling equipment in Nebraska and the western third of Iowa. Anderson has a branch office at 300 South Virginia St., Sioux City, Iowa.

Choctaw, Inc., 1184 Tupelo St., Memphis, Tenn., has been appointed to handle Ka-Mo boring equipment in Arkansas, Mississippi, and the western third of Tennessee.

Detroit Diesel dealer

The Pacific Diesel Power Co., Portland, Ore., has been named a distributor for the Detroit Diesel Engine Division of General Motors, Detroit, Mich.

The new dealer will handle the division's line of truck and industrial engines in western Oregon and several counties in southern Washington. Pacific is established temporarily in quarters at 225 N. W. 14th Ave., Portland.

Harnischfeger dealers given common stock

Harnischfeger Corp., Milwaukee, Wis., in a move to bring its distributor network closer together, has presented its 80 domestic dealer firms with certificates of the corporation's common stock.

The certificates were presented at a special ceremony that opened a recent "Operation Survival" conference sponsored by the firm at its Escanaba, Mich., truck-crane plant. The conference was staged in an effort to combat the general economic let-down.

Master service award presented by I-H

The Master Technician certificate of Melrose Technical Institute, service training center of the Construction Equipment Division of International Harvester Co., Chicago, Ill., has been awarded to Edward P. Gulden, service manager of the State Equipment Co., Albany, N. Y.

To qualify for the certificate, Gulden was required to have eight years' continuous experience on International construction equipment (including three years' field experience), responsibility for shop administration for at least two years, completion of a minimum of 50 courses at Melrose Tech, and the presentation of at least 25 instructional courses.

Essick Machinery names

William Kerr, former district sales manager for Essick Mfg. Co., Los Angeles, in the 11 western states, has been made general manager of Essick Machinery Co., southern California distributor of construction equipment. He will be in charge of sales operations in Los Angeles and Orange County.

Essick Machinery Co., located at 1950 Santa Fe Ave., Los Angeles, has a branch in Santa Ana.

Gibson-Stewart opens Cincinnati branch

Gibson-Stewart Co., Cleveland, Ohio, has opened a Cincinnati branch at 11506 Reading Road. The new 15,000-square-foot building is on a 2-acre site.

New Hyster dealer

Martin A. Ceder, Inc., 2520 W. Market St., Louisville, Ky., has been appointed an industrial-truck dealer by the Hyster Co., Portland, Ore.

The new dealer, which has a branch in Lexington, Ky., will cover Kentucky and a 14-county area in Indiana. It will maintain complete sales, parts, and service facilities for Hyster lift trucks, Straddle Truck carriers, and Karry Krane mobile yard cranes.

Koehring appoints dealer

Koehring Division of Koehring Co., Milwaukee, Wis., has appointed Carroll & Edwards Co., Deerfield Road at E. Kemper Road, Cincinnati, a distributor for southeastern Ohio.

The dealer will handle sales and service on the complete line of Koehring crawler and truck-mounted excavators and cranes, concrete paving and finishing machines, haul units, and the "Skooper."

Prime-Mover distributor

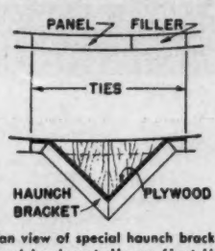
The R. W. Bieller Equipment Co., 579 New Park Ave., West Hartford, Conn., has been named a distributor for the state of Connecticut by The Prime-Mover Co., Muscatine, Iowa, maker of powered buggies, vibrators, and a fork-lift for material handling.

Special Brackets

Symons special haunch brackets re-used 4 times at a cost far below job-built brackets

How to form a series of four 80 ft diameter sludge digestor tanks was the big problem on this job. Calumet Construction Company, Hammond, Indiana, solved it by using Symons Steel-Ply Forms and 3 sizes of special haunch brackets.

The tanks were poured in two lifts —10'6" high, 22" thick—and 14'6" high, 14" thick. Haunches were required on both lifts as well as on the top of the wall. Symons regular haunch brackets



Plan view of special haunch brackets used horizontally on first lift.

were modified to comply with the job requirements. Result: 22 brackets were re-used four times at a price far below what it would have cost to job-build each bracket.

For the *complete story, write us.* Ask also about our free engineering service . . . rental purchase option . . . and complete-line catalog.

Symons

SYMONS CLAMP & MFG. CO.

425 Diversey Ave., Dept. G-1, Chicago 39, Ill.

Warehouses Thruout the U.S.A.

MORE SAVINGS FROM SYMONS

For more facts, circle No. 272

AGRICAT

the world's most versatile miniature Earth Mover, Loader, Trench Digger

Agricat becomes Loader in less than 10 minutes by replacing blade with bucket.

Hydraulic back-hoe attachment converts Agricat into Agrihoe for trench digging.

PROFITABLE DEALERSHIPS AVAILABLE

Write or wire for further information

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for wide treads

to SPEED-LOAD ANY RIGS

just pick the model that does it best

You get Tilt-Top loading speed for any type of rig from shovels or backhoes, to farm-type tractors when you select from a dozen models developed by MILLER, the pioneer Tilt-Top manufacturer. For *wide tread rigs* — wide platform models offer a full 8 feet over the wheels . . . with rugged support right out to the edges. For *extra low* climb angle and even lower overall load height — between-the-wheel platform models. . . . Whatever the rig, there's a Tilt-Top to load it *faster, easier* . . . run tens of thousands of trouble-free miles!

MILLER *Tilt-Tops*

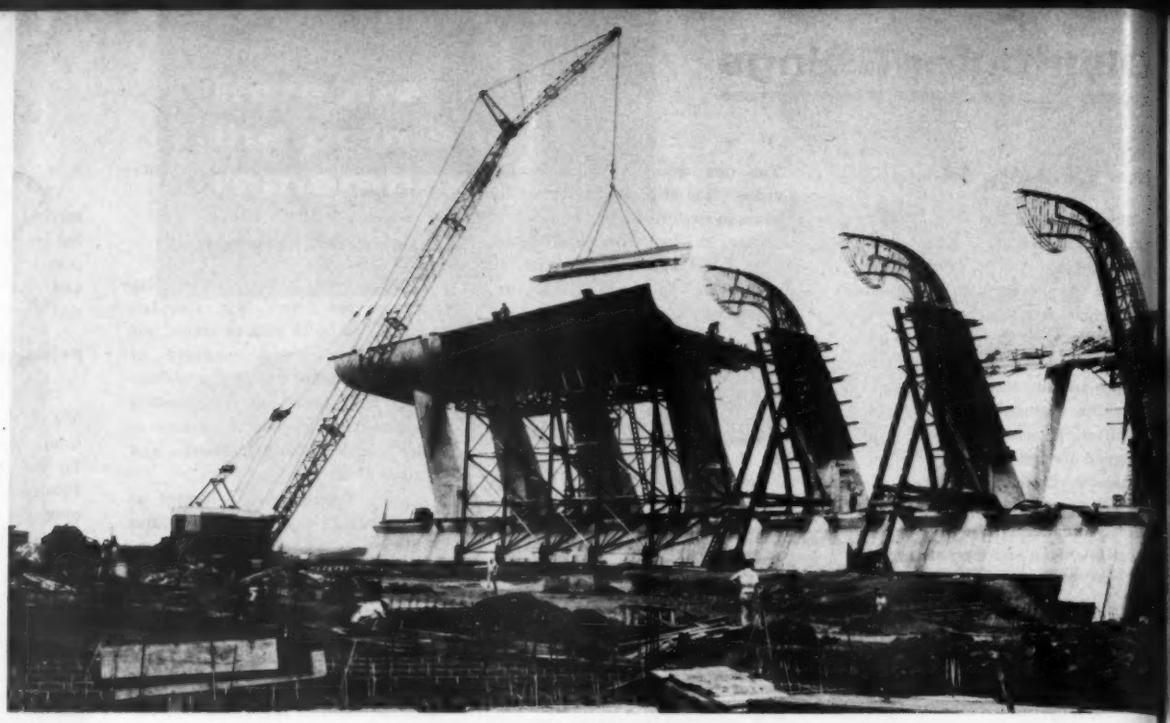
capacities from 4 to 22 tons

for low traction

Miller Tilt-Top Trailer Inc.

456-C So. 92nd Street
Milwaukee 14, Wisconsin

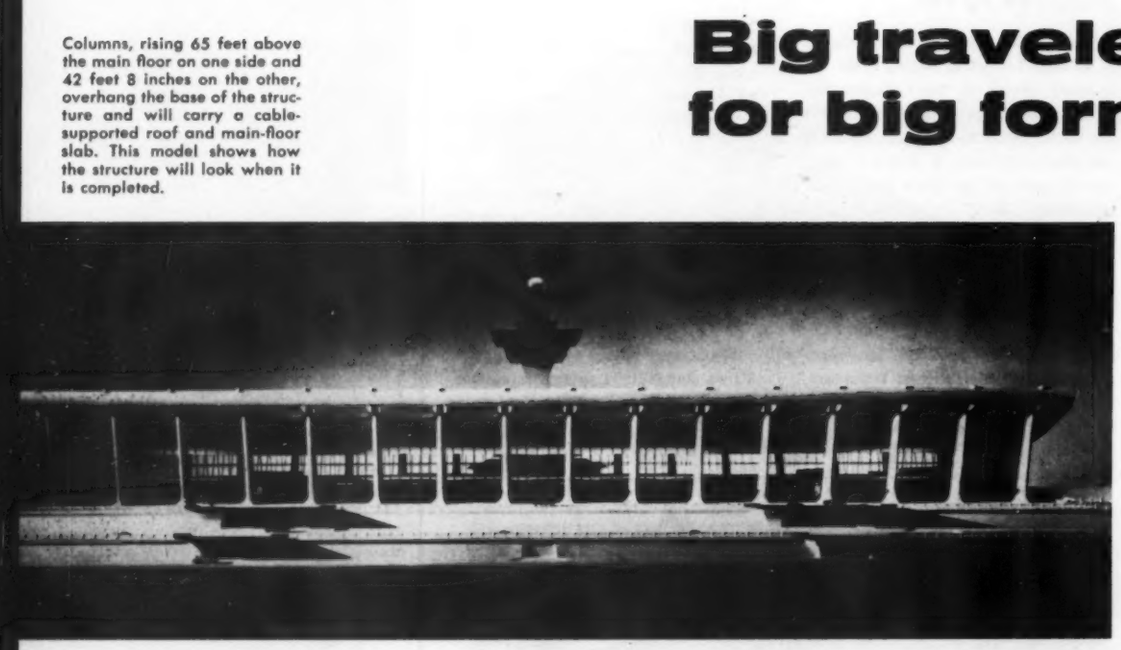
For more facts, use Request Card at page 18 and circle No. 271



A Lima lifts a section of form into place for the huge traveler, designed with special steel form supports, that handles forming for the curving reinforced-concrete edge beam of the terminal building at Dulles International Airport, Chantilly, Va. Edge beams are integral with the top sections of 16 columns on both the north and south sides.

Columns, rising 65 feet above the main floor on one side and 42 feet 8 inches on the other, overhang the base of the structure and will carry a cable-supported roof and main-floor slab. This model shows how the structure will look when it is completed.

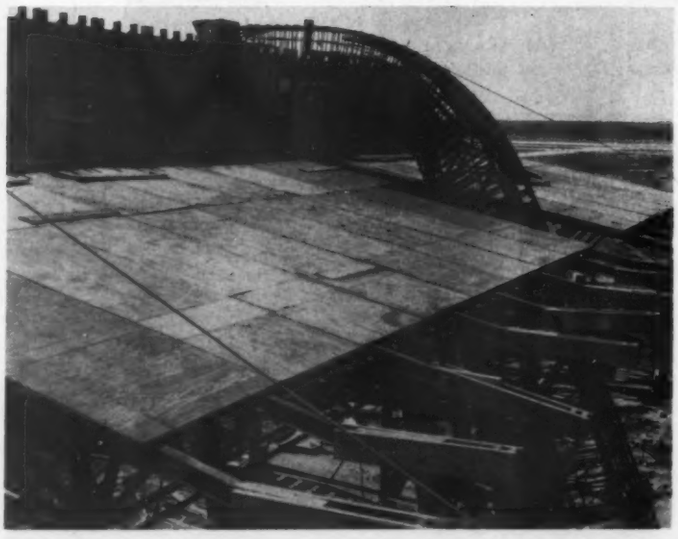
Big travelers for big forming job



Bridge-sized travelers and special steel form supports, designed for the erection of the principal passenger terminal at Washington's new Dulles International Airport, Chantilly, Va., are the most spectacular things at the site right now.

When their work is finished, however, the futuristic-looking building, with a design unique for U. S. airports, will top them in interest. It will have a cable-supported concrete roof, hanging from 32 huge reinforced-concrete main frames, and these frames will also carry the main-floor slab. Despite the odd shapes required and the great weights to be supported during construction, the contractor is using mass-production techniques that are possible because of the repetitive design.

The big travelers and supports are not the only innovations that have been called up by Corbetta Construction Co., New York, N. Y., to get the $4.5 million contract into production and moving toward completion dates now set for early next year. Others include a Corbetta-designed bushing machine being used to give all the outside concrete a terrazzolike appearance, and a wood traveler used to cast the main-floor slab.

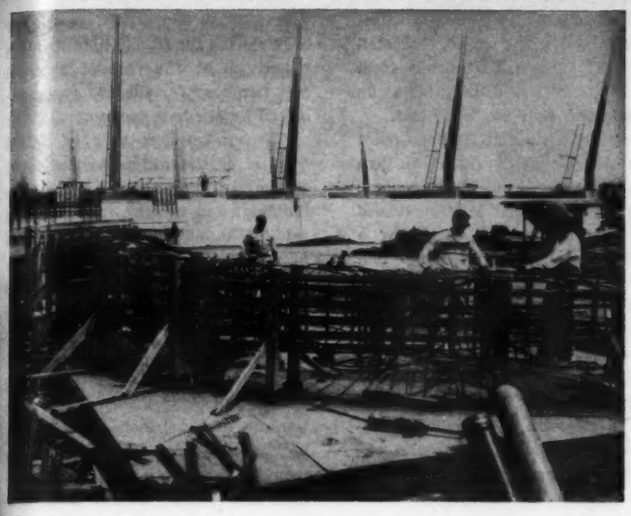


Plywood forming fits around the upper curved sections of the main frame. The back edge of the platform is carried on adjustable strut, below, which can be dropped away in stripping. This allows the traveler to move past the next pair of frames.

Photo courtesy of Air Photographics, Inc.

What the contract covers

The terminal building will be 640 feet long, 182 feet wide, and will have one huge room on the main floor under the suspended roof, plus two lower levels for passenger access, baggage and freight handling, mail, and general operations. Also included



Reinforcing cages for the main frames are manufactured in jigs on the ground and lifted into place by cranes. The basic component of the cages is No. 18 rod, 2½ inches in diameter. Sections range in weight from 7 to 14 tons, and up to 73 feet in height.

With a cage in place, prefabricated, specially made wood forms are set, and a unique supporting structure of heavy steel plate is built up at the outer edges to support formwork and concrete. Steel wales, hinged to the plate, will be tied across the back of the formwork.

Photo courtesy of Air Photographics, Inc.

in the contract is a 207-foot-high reinforced-concrete control tower, as well as passageways and ramps to connect the structure with a road network and with the airfield.

The building is situated between the two principal existing 10,500-foot runways (three of four planned runways have already been built) on an immense airfield that encompasses nearly 15 square miles of area. The field will be linked to downtown Washington, some 28 miles away, by a 6-lane highway now under construction. Auto traffic will enter the field from the north, well away from the runways, and will be routed between the parallel airstrips without coming near or crossing airplane traffic lanes.

The terminal includes one major innovation that affects the design—use of huge, buslike "mobilounges" that will take passengers directly from the terminal to their planes. This eliminates the need for long walks, fingers, ramps, etc.

The main construction feature of the terminal itself is the work on the main-floor level and the system for support of the roof. The entire main building, including the floor slab, is supported principally on 16 pairs of main frames or columns, spaced 40 feet on centers along the north-south sides. On the north side the columns rise 65 feet above the main floor; on the south side, they rise 42 feet 8 inches. These immensely heavy columns are shaped in graceful arcs extending outward from the building proper so that they overhang the base of the structure by 22 feet.

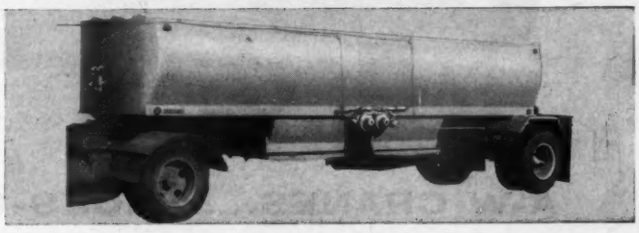
The columns will be tied together at the top by a huge, curving reinforced-concrete edge beam, formed integrally with the top section of the column. This edge beam, which acts as a support for intermediate cables to support the roof, is a striking architectural feature.

Between each pair of columns or main frames—excepting at the ends—and at intervals of 10 feet along the edge beams for the whole length of the building, pairs of 1-inch-diameter cables are to be stretched.

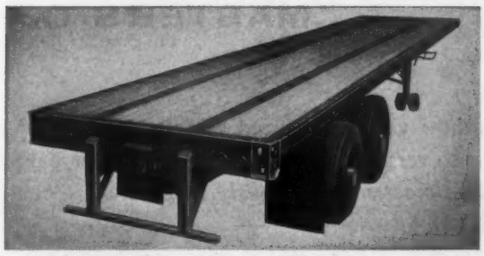
(Continued on next page)

Fruehauf Construction Trailers Are BIG MONEY MAKERS!

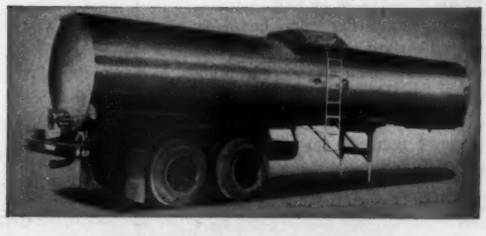
HOIST-TYPE DUMPS—wide range of designs in steel or frameless aluminum with weight savings up to 3,500 pounds. Single or tandem axle. Single or twin front-mounted or under-mounted telescopic hoists. Available with sand and gravel or rugged rock bodies. Toughest units on the market!



FRUEHAUF BOTTOM HOPPER DUMPS are rugged rough-terrain units. They are excellent for hauling sand, gravel or aggregates. Frameless high-tensile steel body. Tandem models with 14 to 30 cubic yard payloads for high-profit, lower-cost hauling.



PLATFORM TRAILERS—designed for years of rugged service. Fruehauf Platforms range from brawny 50,000-pound capacity Workhorse units to lighter-weight multi-purpose units. Lengths from 21½ feet for single axle units to 42 feet for tandems.



HIGH-TEMPERATURE INSULATED TANKS—engineered to haul bigger payloads of asphalt, road oil, or similar products. Tank capacities range up to 9,000 gallons. Available in steel or weight-saving aluminum. Safely transports liquids with temperature requirements ranging from 150° to 450° F.

"ENGINEERED TRANSPORTATION"—The Key to Transportation Savings

FRUEHAUF TRAILERS

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Name _____ (Please print)
Company _____
Address _____
City _____ State _____

For more facts, use coupon or Request Card at page 18 and circle No. 273

(*Continued from preceding page*)

These will later be encased in reinforced concrete to form ribs. On these cables will be placed lightweight-concrete panels, 5 feet 11 inches × 7 feet 8 inches, to form the roof. The roof panels will be covered by a sheet of 1/16-inch neoprene plastic, rather than the usual built-up roofing material, to provide sufficient "give" in the waterproofing. A single cable-supported rib will support the roof at each end. Side walls between columns at the ends will be glass curtain walls with no supporting function.

The very heavy column bases—19 feet square at the main-floor level, 23 feet square at the bottom, and as much as 26 feet thick to firm rock—are also the principal support of the 10-inch-thick main-floor slab. This will consist of 6 inches of reinforced concrete, plus a 4-inch white aggregate topping that will be ground and polished.

Tackle form problem

One of the first problems facing the contractor was the design and construction of forms for the main frames and the connecting edge beams. The frames resemble an old-fashioned box kite in section, tapering quite sharply upward from the main-floor slab to a rounded section resembling a horse's neck at the upper end.

The "kite" is actually a hexagonal section, with a base at the main floor measuring 8 feet 11 inches wide and 12 feet 8⅝ inches in depth. It tapers to a width of only 5 feet at its narrowest point in the "neck."

The reinforcing is very heavy; basically, it consists of No. 18 deformed bars (2½ inches in diameter) tied to the base and the footing by equally heavy bars cast into the base concrete. So heavy is the reinforcing that the entire cage is fabricated in jigs on the ground and lifted into place by the big Lima crawlers that Corbetta uses throughout the job. The cage assemblies made up in the jigs vary in length to 73 feet and weigh as much as 14 tons.

The connecting edge beam is a curved section, averaging 26 feet wide and 1 foot 7 inches thick, curving upward and arching across the "neck" of the main frame from about its thinnest point to the rounded outer end.

Support needed

The requirement of casting the edge beam monolithically with the top sections of the main frames made it obvious that (1) support would be needed for the specially built formwork for the outward-leaning frames; (2) some method of casting the edge beams would have to be developed to permit re-use of prefabricated forms high up in the air; (3) plywood forms could be used for the frames themselves and could be re-used throughout since the section of all the columns is symmetrical.

The contractor called in Concrete Accessories Co., Zelienople, Pa., to help study the problem and fabricate the supports now being used.

There are two principal assemblies: an unusual assembly of heavy built-up plates and steel channels for wales that supports the tailor-made wood forms for the main frames; and the two traveling rigs that ride tracks along both sides of the structure and carry forms for the edge beams and frame tops.

Some idea of the weight that must be supported in the leaning frames alone can be drawn from the fact that each frame takes an average of 102 cubic yards of concrete up to the point of junction with the edge beam. The edge beam itself, plus the tops of each pair of frames, takes another 140 yards.

Supports for the frames consist basically of a pair of upright members that are actually heavy built-up steel plate in the shape of an elongated diamond, 52 feet 2⅝ inches from point to point and 8 feet wide at its widest point near the lower end.

This plate rests its bottom point on a hinge bracket, which is in turn held in position by diagonal bracing of 10 × 10 timbers and is braced from the top to the ground by a diagonal steel strut. The plate then serves as anchor point for an open boxlike assembly of steel wales, made up of 8-inch or 1-foot steel channels spaced 3 feet 11 inches on centers from the top point of the plate to the lowest desirable point. These wales can be adjusted to completely surround the wood forms around the reinforcing cages that had already been placed.

Using such supports, Corbetta has been placing the frames in continuous operations at the rate of about 6 feet per hour for the 102 yards required for the base section.

The big travelers vary in height because of the different heights of the main frames on each side of the building, and because on the south side of the building the inner set of legs must ride the building wall.

Each traveler consists of four bays supported vertically by pairs of 8 to 10-inch WF H-beams welded at the bottom to jack assemblies that also mount the wheels. The platform thus formed is 8 feet 8 inches wide at the top and 15 feet 4 inches wide at the bottom. Diagonals and connecting members are made up of back-to-back steel angles, varying from 4 to

AUSTIN-WESTERN PRODUCTS SAVE TIME AND MONEY

A-W CRANES..... JACKS-OF-ALL-TRADES ...MASTERS OF MANY

Imagine how you could speed things up with an Austin-Western hydraulic crane like this. It is so versatile and mobile that it can serve different crews on one or more nearby job sites *almost simultaneously* . . . releasing costly manpower and equipment for other tasks!

A-W cranes come in five models with capacities up to 11 tons. Self-propelled, truck or stationary mounted. Telecsoping "live" hydraulic booms extend to 48 ft., reach up to 55 ft. above ground, and rotate in continuous full circle on most models.

Here is why they are the most profitable and useful all-purpose lift, carry and place equipment made. For example, the models 210, 220 and 410 feature: *All-wheel steering*—amazing maneuverability in tightest quarters. *All-wheel drive* provides traction for any terrain; climbs steep off-the-road grades. *Overhead clearances* are low. *Every operation* is hydraulically controlled; *road speeds* range up to 35 mph!

A-W's are such jacks-of-all-trades because optional attachments include clamshell; orange peel; pintle hook; winch; remote control personnel platform for work aloft; magnet; load carrying platform; snow plow or dozer blade. Write today for more information about Austin-Western's full line of time and money-saving hydraulic cranes.

6 inches in size. They ride on 100-pound railroad rails.

On the south side of the building, outer legs of the traveler are 41 feet 7 inches long from the top platform to the jack assembly, while inner legs are 30 feet 7 inches in length. On the north side, both sets of legs are 54 feet 8 inches long.

The traveler is used both to provide a working platform and as support for the concrete for the edge beam and upper column section. To provide added support for the inner edge of the forms, travelers are also fitted with four adjustable struts on a diagonal. These can be dropped out of the way for stripping and to allow the rig to be towed by tractor past the frames to the next position.

A job-built wood traveler, one-third the width of the main-floor slab, was used in casting this floor, then disassembled. The floor slab is further supported on intermediate columns averaging 1 foot 4 inches square × 13 feet 9 inches high and spaced generally 20 feet on centers.

Bush hammers required to expose aggregate and provide the structure with a terrazzo appearance were developed by the contractor. An Ingersoll-Rand chipping hammer drives the mechanism for the air-powered bush hammers. Drills have six ½-inch drill bits that rotate individually by air pressure. Shown above is a hand-held type; at right is a truck-mounted type, which is equipped with a rotating head.

Photo courtesy of Air Photographics, Inc.

Control tower

The 207-foot-high control tower (including the radome at the top) will be square in section and taper upward from a section 43 feet square at the footing to 21 feet square at the thinnest point, 108 feet above the base.

The structure will contain a central core, enclosed by 12-inch-thick concrete walls, which will contain a stairway, an elevator, and utility ducts. Pedestal walls from footing to ground level are 3 feet thick to carry the weight of the tower.

The tower will be topped by steel-framed balconies tied into the main structure to support glassed-in offices, teletype and radar rooms, and other facilities for airways traffic controllers.

All of the more than 35,000 cubic yards of concrete that will go into the structure (excepting the precast roof panels and some other precast items that will be used in finishing work) will be brought to the site in ready-mix trucks by Virginia Concrete Co. of Alexandria.

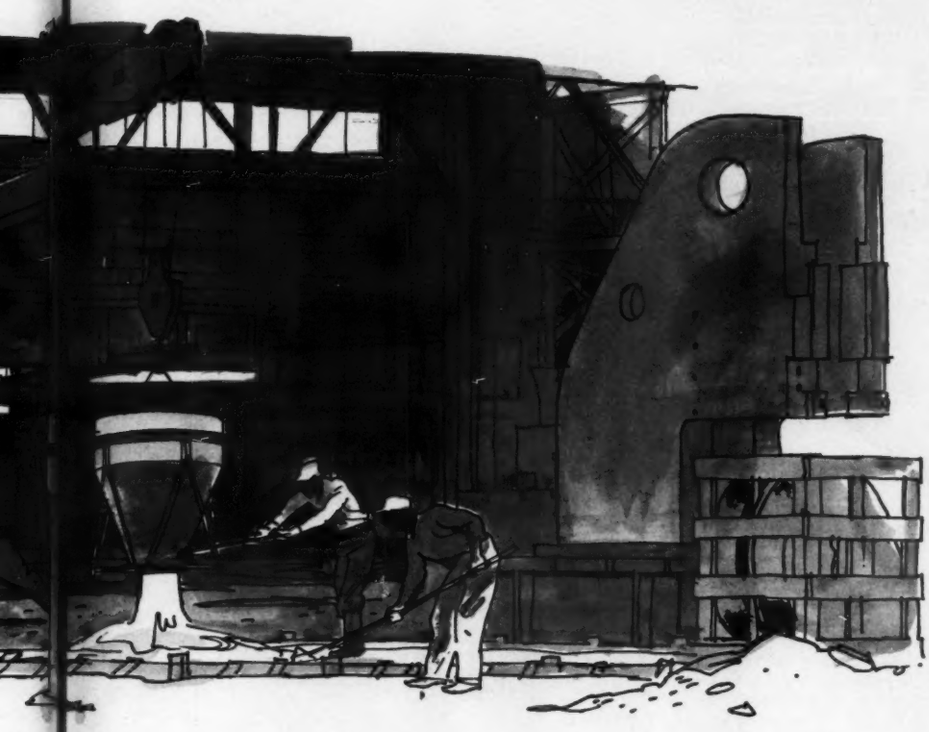
Bush hammers

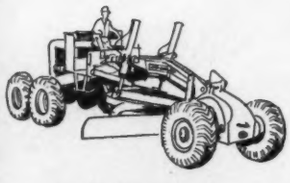
The bush hammers developed for the job are of two types—one hand-held for work around corners and in tight places, the other mounted like a jumbo drill on a pickup truck for work along the long front and rear walls.

Hammering is required by the design to expose the aggregate and provide a terrazzolike effect for the whole structure.

The hammers were developed by Corbetta in its own shops in New York City. The basic unit is an Ingersoll-Rand chipping hammer (as far as the driving mechanism for the air-powered bush hammers is concerned), but the rest of the development came right out of the mechanics' thinking.

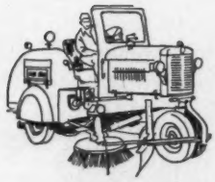
Both the truck-mounted and the hand-held version consist of a head





A-W POWER GRADERS

9 models; all-wheel drive and steer 4-wheel Pacers and 6-wheel Supers. Weight classification to 30,000 lb., power ranges to 165 hp.



A-W MOTOR SWEEPERS

2 models: 2-yd. Model 40; 4-plus Model 60. Safe, easy front steer; full visibility. Simplified design; broom and hopper in rear.

A-W COMPACTION EQUIPMENT

Variable-weight tandem, 3-wheel and pneumatic tired rollers; portable tandem; Roller-Compactor; vibratory attachment for most 3-wheel rollers.

Austin-Western CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

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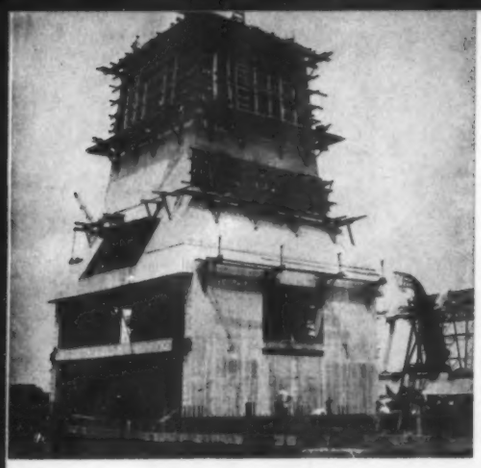
For more facts, use Request Card at page 18 and circle No. 274



Formwork rises on the control tower on the south side of the building. The tower, to be 207 feet high, is 43 feet square at its widest section and will taper to 21 feet square 108 feet above the ground. The central core will contain elevator, stairway, and utility ducts.

PCA releases new film on soil-cement testing

■ The Portland Cement Association, Chicago, Ill., has released a 16-mm sound and color motion picture, which describes the current standard ASTM-AASHO laboratory procedures for testing soil-cement and the latest short-cut testing methods used with sandy soils.

The film, "Standard Laboratory Control of Soil-Cement Mixtures," is available on loan in the United States and Canada from the association, 33 W. Grand Ave., Chicago 10, Ill.

Pavement Specialists moves to new quarters

■ Pavement Specialists Industries, Kansas City, Mo., recently moved into new and larger quarters at 2716 E. 14th St. in that city.

The new building will house the firm's administrative offices, repair shops, and warehouse under one roof, in some 20,000 square feet of space.

Pavement Specialists Industries specializes in joint sawing and sealing, concrete curing, and joint resealing, and is now expanding its services to include core drilling and industrial floor maintenance.

(Continued from preceding page)

that mounts a total of six ½-inch drill bits, each 2 inches long, which rotate individually by air pressure. The hand-held version has a square head mounting these six bits, and it is simply moved about by the operator to achieve a stippling effect.

The truck-mounted version has a rounded head at the end of an adjustable pipe so that it has a reach of about 11 feet. But in this case, the head also rotates to add to the effectiveness of the rotating bits.

Power is supplied by portable compressors.

Excavation

Major excavation was sublet to Western Contracting Co. of Sioux City, Iowa, though Corbetta also accomplished part of the excavation for the wall footings.

Total excavation amounted to about 100,000 yards of material—most of it the odd, striated red shale typical of the area. This shale can be removed rather easily by tractor-mounted rippers for the first several feet below the ground surface, but it grows progressively harder as the excavation becomes deeper. Dynamite had to be used for the deeper excavations.

Other subcontractors on the job include Howard P. Foley, Inc., Washington, electrical; Mason Engineering Co., Fairfax, Va., manholes; Netterhouse Concrete Products, Inc., Chambersburg, Pa., roof slabs; A. F. Jorss Iron Works, Inc., Arlington, Va., and Bethlehem Steel Corp., cables.

The terminal building is being built for the U. S. Federal Aviation Agency, which will operate the airport (along with the existing Washington National Airport) under its National Capital Airports Division. Earl Heist is project engineer for FAA both on the airport and on the access roads.

Engineers-architects include four firms: Ammann & Whitney of New York City; E. Saarinen of Birmingham, Mich.; Burns & McDonnell of New York City; and Emery Husted of Washington. Joseph B. Gordon is resident engineer for Ammann & Whitney, and Richard Malisardi represents the Saarinen firm on the site.

James Lyttle is project manager for the Corbetta company, with John Tantillo as project superintendent.

THE END

Scraper attachment speeds contour job

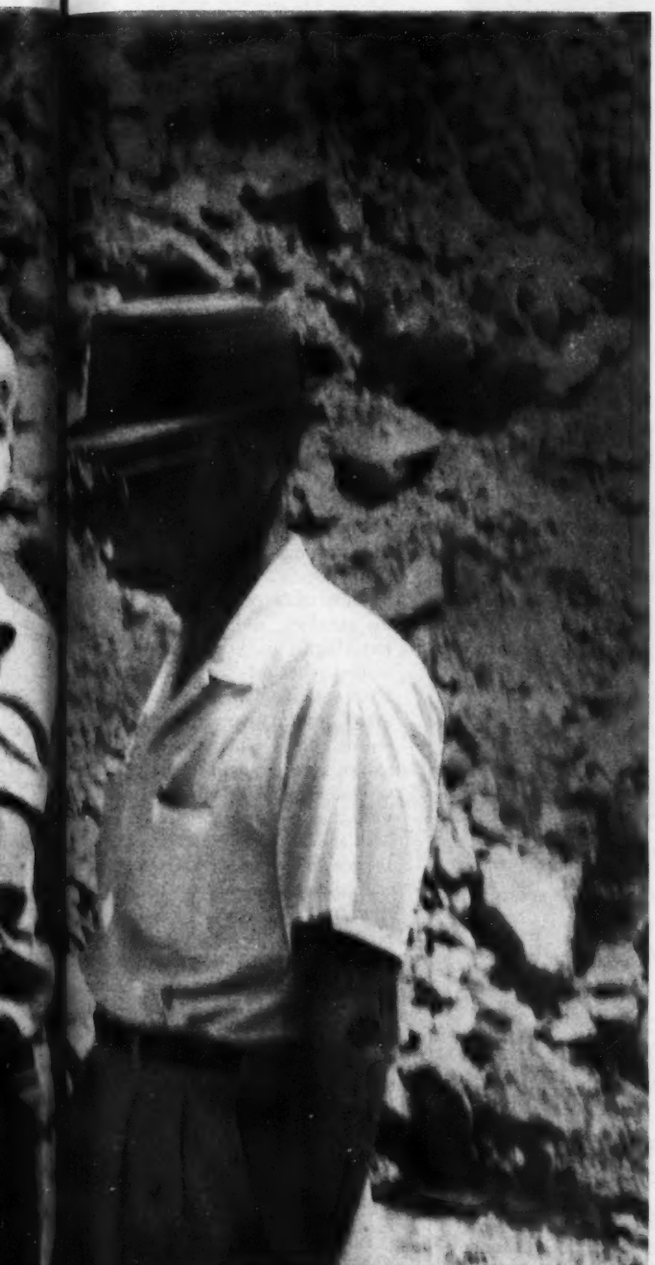
In rolling South Dakota, farm contouring is a healthy part of any small contractor's business. Merle Pasco, Viborg, S. Dak., has cut his operating costs and time appreciably through use of a new unit that converts the high-torque traction of a grader to power for earthmoving.

The job was to slope a hill field and fill a low spot in a road. Pasco installed a Martin 4-yard GraderscrapeR on his Caterpillar No. 12 grader. He loaded the 4-yard bowl in 18 seconds on a 5-degree adverse grade. He also reached speeds of 20 mph on the run to the fill.

Total time for the one-man operation was 2½ hours, including time to install the scraper. Had he used the crawler-scraper method, Pasco estimates the job would have taken him at least 3½ hours with a 4-yard rig.

Write to the Martin Co., Dept. C&E, 620 Andrews Ave., Kewanee, Ill., or circle No. 93 on the Request Card at page 18.

Merle Pasco, Viborg, S. Dak., contractor, carries 4 yards of gravel-soil in his GraderscrapeR on this contouring job.



Why this bearing runs cooler with AMOCO Lithium Grease is explained by American Oil representative Harold Jansen to Raid Brothers' superintendent Kenneth Pearson and partner Melvin Raid.

Result of first experience with American Oil Company service—down-time reduced

BY HAROLD JANSEN

About the Author. Harold Jansen has eleven years' experience giving lubrication technical assistance to customers. He has a degree in engineering to qualify him for such work in addition to having graduated from the Company's Sales Engineering School.

★ ★ ★

Bearings were running hot in the rock-crushing equipment at Raid Brothers aggregate plant, Denmark, Iowa. This reduced the speed at which the equipment could operate.

Our lubrication specialist who called on this account before me recommended a switch to AMOCO Lithium Grease. The grease reduced bearing temperatures, got the bearings running smoothly, upped operating speeds and plant efficiency and cut down-time. The success with this grease, and with the technical assistance we were able to render here, resulted in Raid Brothers converting their entire plant, including automotive equipment, to American Oil products.

★ ★ ★

You can get this kind of technical help and performance improvement from your equipment. Just call the American Oil Company office near you.

Quick facts about **AMOCO Lithium Grease**

- Capable of providing superior lubrication over a wide range of conditions.
- Water resistant.
- High temperature resistant.
- Pumpable in grease gun or pressure system.
- Mechanically stable.

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Helicopter triples reach of contractor management

Company-owned Bell helicopters are tripling the daily supervisory reach of a large general contractor building launching bases for this country's intercontinental ballistic missiles.

Western Contracting Corp., Sioux City, Iowa, uses two of these aerial vehicles to spread management-level supervision over 12 underground Atlas stations it is building simultaneously within a 60-mile radius of Lincoln, Nebr., at Lincoln Air Force Base.

Western Contracting's Bell 47G-2 helicopter arrives at a missile-launching station construction site.

"Management people were needed everywhere at once," said Malcolm G. Schaller, assistant project manager. "It was impossible."

The helicopter has cut in-transit time by two-thirds. Mason Travis, Western's project manager at Lincoln, estimates this translates into a saving of 80 top management hours every week.

"A man flying in a helicopter can visit eight sites in a single day," he says. "Of the 10 hours he is away from the office, he spends only 2½ hours in transit. This gives him 7½ effective, on-site working hours."

Write to the Bell Helicopter Co., Dept. C&E, P. O. Box 482, Fort Worth 1, Texas, or circle No. 94 on Request Card at page 18.

Boston consulting firm appoints new member

Charles T. Main, Inc., consulting engineering firm of Boston, Mass., and Charlotte, N. C., has appointed Clarence A. Dauber to direct the firm's thermal-power engineering.

Dauber was formerly with the Cleveland Electric Illuminating Co.

For more facts, use Request Card

Ironworkers of Bethlehem Steel Co. are hitching up a steel falsework tower below the western (right) end of this big girder, one of three spanning a power substation on a section of the new elevated Bruckner Expressway in the Bronx, N. Y. The eastern end of the girder rests on a dolly placed on a track system. This arrangement prevented the girder from dipping to the roof level of the station, even in the event of a momentary lapse by the two cranes which will walk the western end of the assembly into position.

Elevated track system and cranes set girders in tight area for highway

■ A 164-ton 131-foot-long girder, the heaviest ever fabricated at Bethlehem Steel Co.'s Pottstown, Pa., works is being used as one of three big girders spanning a Consolidated Edison Co. power substation on a section of the new elevated Bruckner Expressway in the Bronx, N. Y.

The station, which runs for 265 feet along the eastern line of the erection work, had to be spanned by 3 girders, with its roof cleared by only 2 feet. A deep railroad cut ran along the eastern edge of the building, and the area between the building and the cut was not wide enough to permit entry of a mobile crane. Furthermore, the railroad cut had a high-tension transmission line running overhead, so that a crane could not be used. Because of the building's location, the three easternmost supporting concrete piers in this area had to be built 52 feet east of the general line of those running north and south of the power station. The three girders that were to span the building ran as much as 38 feet longer than the average for the expressway. The problem was how to lift these girders into position atop the eastern piers without using cranes alongside the eastern edge of the building.

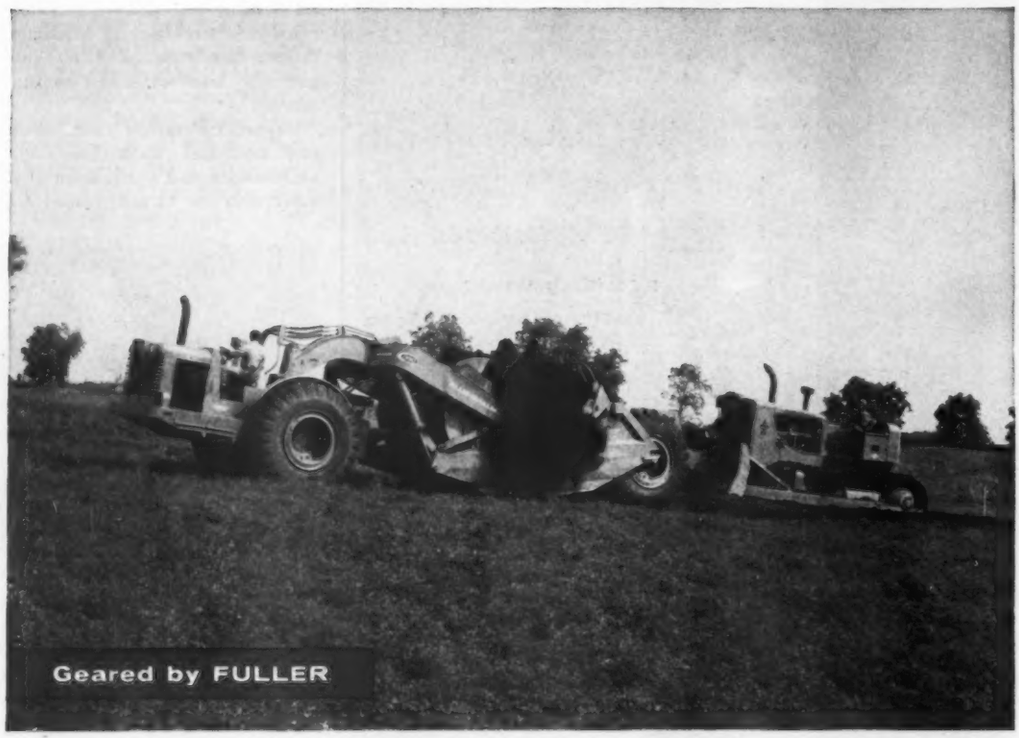
Engineers of Bethlehem's erection department solved the problem by erecting three falsework steel towers alongside the eastern edge of the building. These were spanned by heavy stringers running north and south alongside the line of the three piers. A track system was laid atop the stringers, and a heavy-duty 8-wheel dolly was placed on it. The eastern ends of the girders were lifted onto the dolly, which was then rolled into position alongside the proper pier. Simultaneously, two cranes, traveling in line alongside the western edge of the building, walked the other ends of the girders into position above the western piers. Two 100-ton hydraulic jacks were used to raise the eastern ends of the girders from the dolly onto the piers. For the raising of the 164-ton box girder, two 60-ton cranes were used to walk the other end of the big assembly into position atop the western pier.

Construction of the 6-lane elevated highway, which will link the Triborough Bridge with the New England Thruway, began in 1958. Gull Contracting Co., Inc., Flushing, N. Y., is the general contractor for this job, which is being financed by the federal and New York State governments.

SAME awards Bliss Medal

The Society of American Military Engineers, Washington, D. C., has awarded the Bliss Medal to Rear Admiral Lewis B. Combs, head of the department of civil engineering at Rensselaer Polytechnic Institute, Troy, N. Y.

The award is given annually in recognition of "outstanding contribution to military engineering education."



The Hammersley Construction Company of Madison, Wisconsin is fulfilling its contract to move 2,500,000 yards of dirt in the construction of three Badger State highway interchanges with scrapers equipped entirely with Fuller Transmissions.

2½ Million Yards of Earth Moved by Fuller-Geared Scrapers

Hammersley Construction Company is heap-loading on fast work cycles with one Allis-Chalmers TS 360 geared by a Fuller 5-speed 5-G-1520 Transmission, eight LeTourneau-Westinghouse Model B Tournapulls—all geared by Fuller L-1550 10-Speed Transmissions—and seven Model C Tournapulls equipped with Fuller L-1220 Transmissions.

"We've used Fuller Transmissions in our scrapers for some time," states Fay Hammersley, Jr., owner of the company, "and we've had good results with them. On any new equipment, *I'll specify Fuller.*"

Models 5-G-1520, L-1220, and L-1550 Transmissions are equipped with air-powered Countershaft Inertia Brakes for quick up-shifts, and with Fuller Pressure Lubrication and Filtration Systems to provide positive lubrication, maintain clean oil, and greatly prolong gear and bearing life.

For easier, quicker shifts with engines operating in the peak horsepower range, lower fuel consumption, and GREATER PROFITS in your earth-moving operations . . . specify Fuller Transmissions.

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For more facts, use Request Card at page 18 and circle No. 276

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Check the following profit-making features:

- Perfectly balanced to handle long booms easily, safely. Lifts long booms from the horizontal without assistance.
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- Exceptionally wide and deep boom cross sections.
- Telescopic safety boom stop, with automatic safety shut off to boom hoist.
- Rotating assembly through in-line shaft design achieves a lower center of gravity, producing greater stability for low boom operation. Exceptional drum cable capacity.
- Unit construction—rotating base, rear end unit and machinery side frames form one complete welded assembly for added strength and rigidity.
- Integrally designed third hoist drum, optional, utilizes full size clutches and brakes.
- Dual control mechanical and air swing brake—one locks rotating base, the other is used to snub for precision work.
- Telescopic gantry is powered up and down—removes rear counterweight.
- Optional reduction gear unit for reduced machinery and line speeds without loss of power.
- Boom point section folds under for highway travel.
- Full vision cab—360° visibility for safest operation.
- Easily maneuvered on or off the road—travels at highway speeds.

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Production estimate for men, machine

by GEORGE E. DEATHERAGE, P. E.
construction consultant

The estimating of the possible production from any piece of heavy-construction equipment for a specific piece of work depends on a number of factors. The one most commonly considered is that the equipment or machine, in ordinary circumstances, cannot be counted on to produce more than 50 minutes of each hour. This is an efficiency of 83 per cent.

The 17 per cent loss is due to minor delays such as starting and stopping at the beginning and end of each shift and at noon, minor repairs and adjustments, operator delays, etc. Manufacturers' production tables are generally stated at 100 per cent efficiency in a 60-minute hour, with suggestions that the 50-minute hour be used to gage average output. This is particularly true with earthmoving equipment.

There are many additional factors such as condition of the site, drainage and other surface conditions, and weather that must be considered in determining output for any specific work. However, it is impossible in a practical sense to consider each of these possible delaying factors for each machine for each part of the work. A more practical approach for the estimator is to predetermine a single percentage figure to apply to the optimum production figure (100 per cent at the 60-minute hour) and reduce it to an average figure.

For instance, production of a construction crew generally varies with the economic conditions of the times. Good times mean lower production; normal times, average production; and hard times, good production. These factors are not as important when applied to equipment operation as they are where labor is the controlling factor. However, they do apply to some extent in any case as they influence the over-all tempo of the work.

How should estimates for machine production be increased or cut due to factors such as these?

Over-all project efficiency

Dallavia in his "Estimating Production and Construction Costs" comes up with what he terms "Over-all Project Efficiency" in which the following eight factors are considered:

Factors	Per cent
Economics of the times	75
Areas, volume of work	90
Efficiency labor	70
Efficiency supervision	80
Job conditions	95
Weather conditions	85
Methods, equipment	55
Local delays	75
Over-all Efficiency	78

The Over-all Efficiency figure is then applied to unit production tables to arrive at anticipated production. (The table figures are examples only; the percentages vary with each job being estimated.)

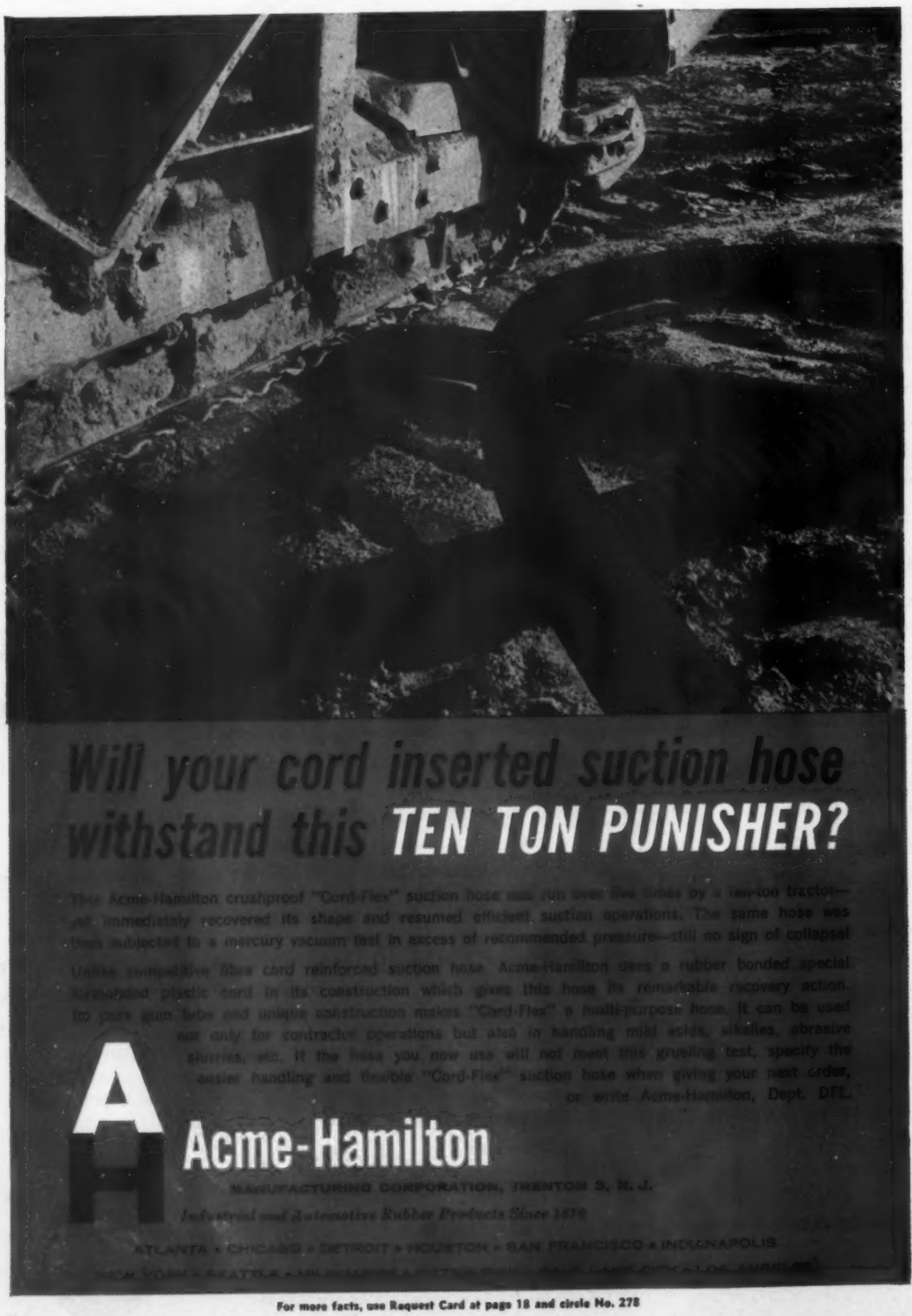
The Power Crane and Shovel Association, in its Technical Bulletin No. 1, also considers certain over-all factors. They are divided into management and job factors.

Job factors

1. Topography and the dimensions of the work, which include the depth of the cut and the amount of moving required within the cut or from one cut to another.

2. Surface and weather conditions, which include in some cases the difference between summer and winter work, also drainage of surface or underground water.

3. Specification requirements, which control the manner in which the work must be handled or indicate


Will your cord inserted suction hose withstand this TEN TON PUNISHER?
This Acme-Hamilton crushproof "Cord-Flex" suction hose was run over five times by a ten-ton tractor—
yet immediately recovered its shape and resumed efficient suction operations. The same hose was
then subjected to a mercury vacuum test in excess of recommended pressure—still no sign of collapse!
Unlike competitive fibre cord reinforced suction hose, Acme-Hamilton uses a rubber bonded special
formulated plastic cord in its construction which gives this hose its remarkable recovery action.
Its pure gum tube and unique construction makes "Cord-Flex" a multi-purpose hose. It can be used
not only for contractor operations but also in handling mild acids, alkalies, abrasive
slurries, etc. If the hose you now use will not meet this grueling test, specify the
easier handling and flexible "Cord-Flex" suction hose when giving your next order,
or write Acme-Hamilton, Dept. DFL.
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the sequence of various operations, and which show the required amount of bank sloping or cutting close to finish line and grade.

Management factors

1. Selection and training of men. The quantities given in the following table indicate what can be reasonably expected from an experienced operator who is willing to work.

2. Selection, care, and repair of equipment.

3. Planning, laying out the job, supervising, and coordinating the operations.

These items can be consolidated into a table showing efficiency percentages for job and management factors.

Job factors	Management factors			
	Excellent	Good	Fair	Poor
Excellent	84	81	76	70
Good	78	75	71	65
Fair	72	69	65	60
Poor	63	61	57	52

"The tabular figures," the PCSA bulletin notes, "are the combination job-management factors by which the yardage figures from the basic output table (as modified by conversion figures for degree of swing) must be multiplied to give the yardage that can be reasonably expected under the job-management conditions that exist or will exist on the job."

One must have both excellent job and management conditions to secure an efficiency of 84 per cent. This might be compared, in a sense, with the efficiency of 83 per cent for the 50-minute hour. The percentage difference between excellent conditions on both counts and poor conditions on both counts is a 32 per cent reduction in yardage output. Such a difference, if ignored by the estimator, could be fatal to job profits.

One important factor disregarded by this table is the economics of the times. In addition, there are other factors that should be considered, both as to Dallavia's method and that of the Power Crane and Shovel Association.

For the purpose of considering all the controlling factors, we might go a step further and select three overall factors—management, labor, equipment—and then average these to arrive at the single percentage desired.

Management factors

Factors pertaining to management include:

1. Preplanning and work methods selection; 2. Selection, care, and repair of equipment; 3. Estimating and cost-control efficiency; 4. Scheduling and expediting; 5. Communications and supervision; 6. Selection, training, and direction of men.

Job factors

The job factors can be divided into those for equipment and those for labor. Those for equipment cover:

1. Machine selection, proper job application; 2. Operator efficiency; 3. Equipment condition (repair and maintenance); 4. Supervision, work methods, proper placement of equipment; 5. Volume/area (long or short-time job); 6. Surface site conditions (drainage-maneuverability); 7. Weather conditions; 8. Specification requirements; 9. Economics of the times; 10. Local job delays.

The percentages given for these factors can be averaged to arrive at a percentage for total equipment factors.

Labor factors include these:

1. Local labor conditions; 2. Local job conditions (general); 3. Local supervision; 4. Weather; 5. Area and volume of work (long or short job); 6. Specification requirements; 7. Local job delays; 8. Economics of the times.

A percentage for total labor factors can be obtained by averaging percentages for each of these eight items.

Here, under management and job factors (equipment plus labor) is a total of 24 conversion factors to be applied to the machine's optimum production for the specific class of work engaged in. If earthmoving is involved, for example, then the top production figure for the soil classification is taken. Obviously, no estimator has the time or inclination to consider all 24 factors for each machine to be used. The best that could be done would be to do this once—for each major work classification, or for the job as a whole.

The end result would be that the over-all project efficiency is bound to be less than the usually figured 83 per cent based on a 50-minute operating hour. Under very poor job conditions, it could be very much less—enough, even, to mean the difference between a profit and a loss.

THE END

Twelve states are considering raising motor vehicle registration fees.

Great new things are shaping up in concrete block

"Shadowal" is available from local block producers. Photo courtesy of National Concrete Masonry Association.

Atlas Masonry Cement provides the right mortar

for laying up new types of concrete masonry such as "Shadowal" block. The face of this 8 x 8 x 16 unit is recessed at an angle on each corner and is used to create a variety of geometric designs.

Whether standard units or the newer types of block are used, ATLAS MASONRY CEMENT continues to be the preferred cement for mortar. That's because it produces a smooth, workable mix... saves labor... cuts waste... helps assure a good bond... gives weathertight joints that are uniform in color. Complies with rigid ASTM and Federal Specifications. For information on masonry cement, write: Universal Atlas, Dept. M, 100 Park Avenue, New York 17, N. Y.

"USS" and "Atlas" are registered trademarks M-84

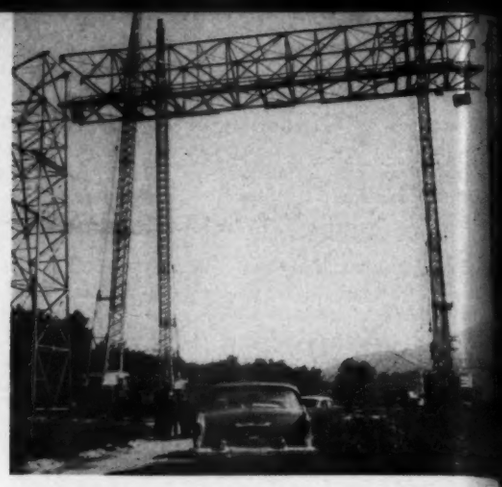
USS Universal Atlas Cement Division of United States Steel

OFFICES: Albany · Birmingham · Boston · Chicago · Dayton · Kansas City · Milwaukee · Minneapolis · New York · Philadelphia · Pittsburgh · St. Louis · Waco

For more facts, use Request Card at page 18 and circle No. 279

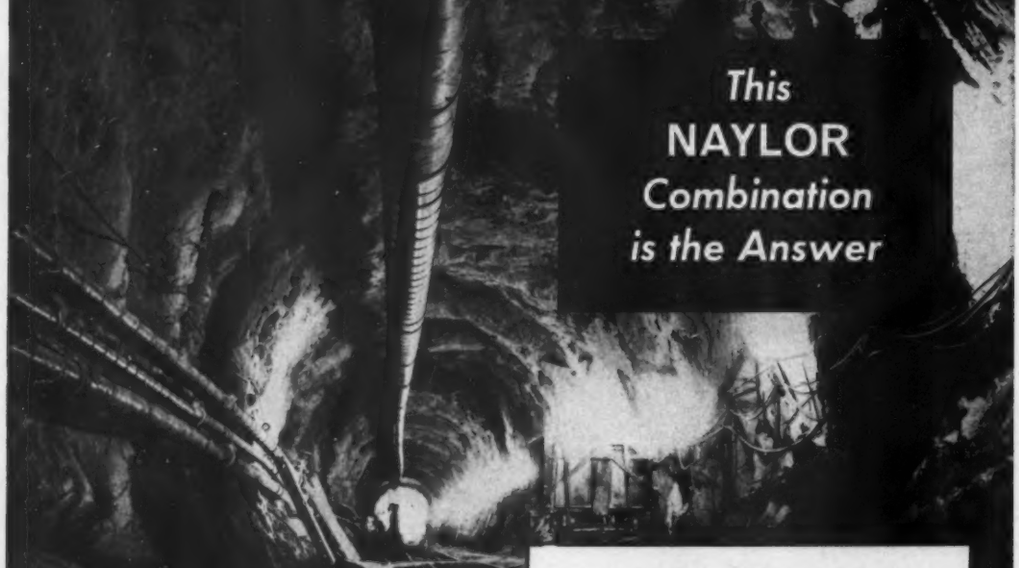
Construction Camera

Charging aggregate to a hot-mix plant owned by The Kelley & Meyer Co., in Youngstown, Ohio, is only part of the job of this Model H-50 Payloader. The rig, with an operating capacity of 5,000 pounds, is shuttled between two Youngstown plants owned by the company for varied work on plant maintenance and operation.



Four cranes lift a truss into place for the largest of three portal transmission towers at General Electric's Project EHV (extra high voltage) near Pittsfield, Mass. The structures were designed and fabricated by American Bridge Division.

How to Simplify PIPING Installations



NAYLOR Wedgelock couplings make a positive connection securely anchored in standard weight grooved ends.

If your job calls for air, water or ventilating lines, you'll be time and money ahead to use NAYLOR Spiralweld pipe and NAYLOR Wedgelock couplings.

This combination simplifies pipe line construction. The pipe is easier to handle, easier to install. Although it is light in weight, there's no sacrifice of strength due to the exclusive lockseamed-spiral-welded structure which creates a stronger, safer pipe.

The Wedgelock coupling saves time and work, too, because it speeds connections. A hammer is the only tool required to connect or disconnect it and lines can be made up with only one side of the pipe in the open.

For details on this time-and-money-saving combination, write for Bulletin No. 59

NAYLOR PIPE Company

1270 East 92nd Street, Chicago 19, Illinois

Eastern U. S. and Foreign Sales Office: 60 East 42nd Street, New York 17, N. Y.

For more facts, use Request Card at page 18 and circle No. 280

Corps news

Maj. Gen. Walter K. Wilson, Jr., commanding general of the Engineer Center and Fort Belvoir, Va., has been nominated to be chief of Army Engineers and for promotion to the grade of lieutenant general by President Kennedy. He succeeds Lieut. Gen. Emerson C. Itschner.

Col. Gordon B. Page has been appointed deputy division engineer of the Corp's Southwestern Division at Dallas, Texas. He will be second in command of the Army Engineers' construction and operations activities in eight southwestern states.

Three Army Engineer civilian employees of the Omaha District have been named key heads of the district's engineering division. Charles L. Hipp has been appointed chief of engineering; Edward Soucek, assistant chief of engineering; and Aaron H. Bauman, chief of the civil design branch.

A plaque, for the outstanding contribution to safety, was recently presented to Col. Alfred J. D'Arezzo, district engineer of the Corps' St. Louis District. Both the government and the contractors' employees of this district performed almost 4 million man-hours of work, and operated trucks and automobiles, in connection with their work, almost 1 million miles with a frequency rate of 1.0. This rate is the lowest in the Lower Mississippi Valley Division.

B-E names to sales posts

■ New appointments have been made in the sales department of Bucyrus-Erie Co., South Milwaukee, Wis., maker of construction, mining, and drilling equipment.

Howard Freyensee has been named general-products sales manager, a newly created post.

Robert P. Brooks succeeds Freyensee as large-machine sales manager. Brooks was previously sales manager of quarry and mining excavators and manager of mining-machine sales.

Robert L. Smith has been named manager of sales promotion for the company. For the past six years, he has been a sales representative attached to the firm's Chicago regional office.

This 1,200-foot-long building, incorporating rigid-frame design and Z-section cold-formed high-tensile-strength purlins and girts, is under construction by the Steel Co. of Canada at its mill in Hamilton, Ont. Weight savings averaged 5½ pounds per square foot as compared with conventional flat truss design. Butler Mfg. Co. (Canada), Ltd., was the fabricator.

Some 25,000 cubic yards of clay for two blocks of commercial buildings in Tyler, Texas, is being excavated by this ¾-yard Lorain Model 26 dragline with 40 feet of boom. Wilford Haskin of Tyler, owner of the rig, averages 1,200 cubic yards in a 16-hour day with a 1-cubic-yard bucket.

Allis-Chalmers news

■ John W. Carlson has been named general manager of the Engine-Material Handling Division of Allis-Chalmers Mfg. Co., Milwaukee, Wis. He has been assistant general manager of the firm's Construction Machinery Division.

Production is scheduled to begin this month in Allis-Chalmers' new engine manufacturing plant at its Harvey (Ill.) Works. This plant will be a high-production operation, employing a straight-line production system in the machining, assembly, and testing of engines. Initial production will center around A-C's line of nine basic diesel and gasoline engines. Later in the year, the plant will start production of six other engine models used in the firm's line of material-handling trucks, also manufactured at the Harvey Works.

Named by Owatonna Tool

■ James Rainey has been named a district sales manager for the Owatonna Tool Co., Owatonna, Minn. His territory will be the state of Illinois with the exception of Chicago.

Rainey was formerly export representative for the Hyster Co.

A DOUBLE LINE OF STEEL GUARDRAIL consisting of Armco Flex-Beam sections provided by Armco Drainage & Metal Products, Inc., is being installed on H-beam steel posts along the Pennsylvania Turnpike's median strip by Whitmyer Bros., Inc., Folsom, N. J. The barrier, designed to prevent head-on collisions, will run the entire length of the turnpike, except where the median is 90 feet or more wide.

On Wheels or Standing Pat...

Central Mix Means Johnson

Where production of rigid specification concrete takes on giant proportions, one name in central mix plants clearly stands alone . . . C. S. Johnson.

Johnson experience is tightly locked in the aggregate of practically every major dam, hydroelectric project and other complex concrete pour that you can name. Batch by batch, over the years, Johnson quality has remained consistent . . . met the minutes of changing times with new and better ways of producing quality concrete at lowest cost per yard of material.

Take this new completely mobile central mix paving plant for example. It is a fully automatic plant on wheels. Mix selections are available at the touch of a button and flip of a switch. It will duplicate the strict specification concrete you demand accurately, with new ease and speed. The low silhouette and compact design provides a plant that sets up and travels with a minimum of time, trouble and effort. Batcher is 8 cubic yards. The mixer is size 210S.

Whatever your needs in central mix plants . . . mobile, portable or stationary . . . C. S. Johnson can serve you best. See your distributor for details or write for information.

C. S. JOHNSON CO.

Champaign, Ill. • Stockton, California

A Division of KOEHRING Company

J101

For more facts, use Request Card at page 18 and circle No. 281

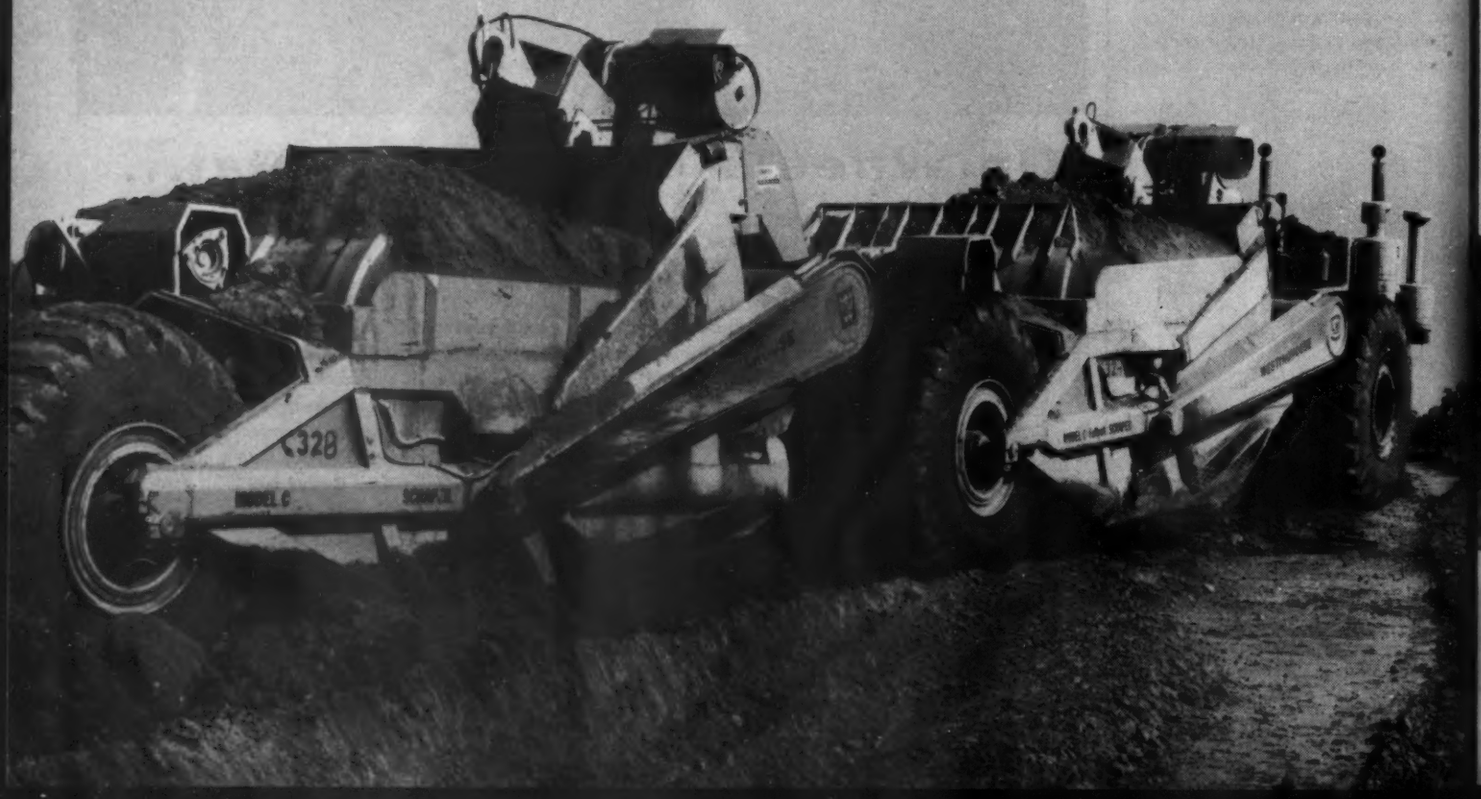
"Keep moving . . . have little downtime," says Leonard "Len" Stahoski, Secretary of Stack Construction Co., Milwaukee, Wis. "We've run 'Pulls since 1950. They *do* what we want them to do . . . that's why we're LW all the way!" This LeTourneau-Westinghouse 290-hp V-Power C Tournapull® is fast all through the cycle because it has the best power-to-weight ratio in its class: 307 to 1. Accelerates to top-hauling speeds 20% faster than other scrapers in the "C" category.

"Produce 25 to 30% more than our older machines on half-mile cycles," reports James A. Christy, Superintendent for Booth and Olson, Sioux City, Iowa. Footing on this 594,000-yd highway project was often *"so soft* you couldn't run a grader on it". But Booth and Olson's 6 C 'Pulls kept production on schedule. LW power-transfer differential and kingpin electric power-steer "walk" Tournapulls out of wet, muddy going on cuts, haul roads, and fill areas that stops other scrapers.

EARTHMOVING MEN WHO KNOW TELL YOU

why C 'Pulls* move more ya

"Hooked-up in tandems, they're still fast," says Superintendent Bill Conners on a subdivision project at Fullerton, Calif., where Boeck Paving Company operated 2 C 'Pulls with tandem scrapers. In just 6½ hours, these two LW machines *moved 5000 pay yards!* Only LeTourneau-Westinghouse offers you a practical way to use tandem scrapers for *double capacity* on every trip. LW's exclusive electric-control system sends working power *any* distance with *no* loss of efficiency. And, the ball-and-socket swivel-hitch permits 180° nonstop turns in area only 20 to 25% wider than with "singles". You back up, too, with no tendency to jackknife.



LeT

A Su

"Keep us ahead of schedule," comments Superintendent C. J. Bogue Jr. One of the V-Power "C's" — owned by John F. Buckner and Sons, Cleburne, Texas — gets heaped load on highway job near Blue Ridge. LW 20-yd Fullpak® scraper loads fast because its low, wide bowl lets dirt flow-in easily, almost horizontally, with only a 2° rise to "climb". Result: More of your prime-mover-and-pusher power is used for cutting and pulling . . . less is wasted merely lifting dirt.

reyards faster

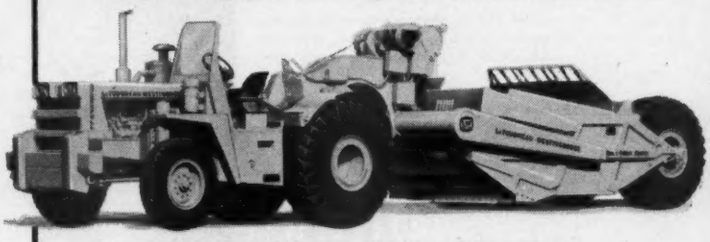
"Plenty fast and really haul dirt," says W. C. Matthews, Superintendent for Frank C. Feutz Co., of Paris, Illinois, owner of two V-Power C 'Pulls. Operator Paul W. Knight adds, "This powerful scraper goes right through soft spots in 4th gear . . . has *all the power you could ask for!*"

*Trademark CP-2425-DCJ-2

Other profit-builders:

LW TOURNAPULLS

In addition to the 20-yd, 290-hp V-Power "C", other LW Tournapull-scrapers include: 29-yd, 430-hp "B", and 9-yd, 143-hp "D" Scrapers interchangeable with LW Rear-Dumps.

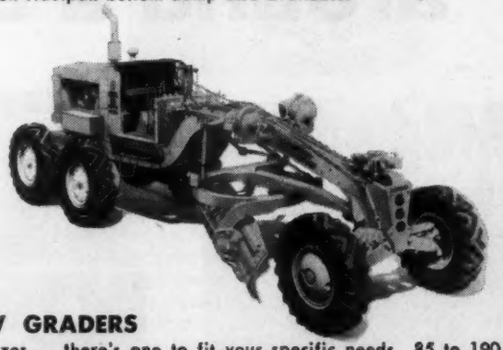


LW SPEEDPULL®

This 6-wheel prime-mover-scraper combination makes your long-haul jobs more profitable. 37.7 mph, 276 hp, 20 yd heaped capacity. 40 yd in tandem.

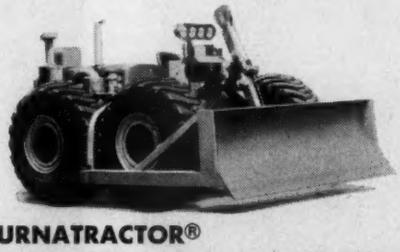
LW HAULPAKS®

Here's a hauler designed to earthmoving "specs", *not* automotive. 5 end-dump sizes 22 to 60 tons . . . up to 550 hp. 90-ton Haulpak bottom-dump also available.



LW GRADERS

7 sizes . . . there's one to fit *your* specific needs. 85 to 190 hp, including 2 torque-converter POWER-*Flow*® models.



LW TOURNATRACTOR®

Get more speed, mobility on tractor work with rubber-tired Tournatractor. 18.5 mph. 218 hp. Choice of electric or hydraulic blade control.

See LW Distributor for details.

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

LW

Construction of a new 22-story office building around an existing bank building in Milwaukee creates tough working conditions that the contractor is taking in stride. Machines, for example, cannot move from one side of the work area to another; the three streets and the river that adjoin the site leave little room for storage of materials; and interior bracing reduces working space.

Business-as-usual policy forces contracting firm to

Build a bank around a bank

by BILL ALLEN, field editor

One of the solutions was to work from the river side. At this point, a Lima 1201 with Vulcan 80C hammer drives piles close to the elevator shaft. H-piles and steel sheeting are stored on barges and fed by cranes to rigs working in the excavation. Braces on the cofferdam wall are held by interior pile caps.

Pile-driving rigs work on opposite sides of the old bank building. The Lima 1201 with Vulcan 80C hammer drives the first of the H-piles that will support the main tower of the new structure.

A business-as-usual policy for a bank is making construction unusual for a contractor.

The difficulty lies in building a 22-story office tower over an existing bank while customers still make deposits. Both the bank and the customers tend to get in the way.

With the bank building in the middle of the job, machines cannot move from one side of the site to the other. The job is split in two. The bank building also complicates the foundation and structural steel work. Heavy slabs of pile-supported concrete must be placed close along each side of the building. These 8-foot-thick slabs support the steel columns that hold the 105-ton steel box girders spanning the 75 feet across the bank.

Congested working conditions also add to the contractor's headaches. The excavation occupies an entire block bounded by a river and three busy downtown streets. There is little room for storage of materials on or near the site. Interior bracing of the sheet-pile wall further reduces working space.

Added safety precautions are being taken to prevent the bank from losing any customers. Although the customers stay outside of the con-

A Lima ¾-yard rig dumps excavated material into a Ford dump truck as it works one corner of the site. In the background, a Manitowoc operating with a Vulcan "O" hammer drives wood piles to support the pavilion.

A Bucyrus-Erie 38-B clams material from one corner of the excavation. Braces go from soldier piles to interior pile caps. The 25,000-yard excavation job was done by R-W Construction Co., Milwaukee, under a subcontract from M-C&S.

struction fence, they still must walk close to cranes and transit-mix trucks operating from the street.

An $18 million project

The bank that insists on staying open for business is the Marine National Exchange Bank of Milwaukee. The general contractor that must work around the bank is Turner Construction Co. of New York City and Chicago. The location is downtown Milwaukee, in the block bounded by Wisconsin Ave., N. Water St., Michigan St., and the Milwaukee River.

Called Marine Plaza, the $18 million development will consist of three buildings. In one block, a 22-story 252 × 84-foot office tower will adjoin a spectacular 42-foot-high entrance pavilion. The steel frame of the tower is sheathed in a curtain wall of glass and aluminum. The pavilion has tall fluted concrete columns with a curtain wall of glass and porcelain panels. Enclosed escalators connect the two buildings. Marine National Exchange Bank will be the principal tenant of the office tower.

In an adjoining block will be a 5-floor 122 × 360-foot parking building. With space for 750 cars, the reinforced-concrete structure will be connected to the office tower by an over-the-street enclosed bridge. Turner Construction Co. is the contractor for all three buildings.

Designers of the development are Harrison & Abramovitz of New York City, with Robert E. Rasche of Milwaukee as associated architect. Edwards & Hjorth, New York City, are the structural engineers. Project owner is Wisconsin Clybourn Urban Redevelopment Corp. Construction of the building, which started in August of 1960, is expected to be completed in the spring of 1962.

Bank gets clipped

Other than to make life difficult for the contractor, the bank had sound reasons for staying in business on the site. The vaults in the basement were needed as a safe storage place for money and securities. The vaults will be modernized, and they will remain in place in the new

(Continued on next page)

New! Improved! **GAR-BRO CONCRETE BUCKETS**

larger gates... lower loading heights

Designed for stiffer concrete mixes commonly encountered on structural concrete jobs. New Gar-Bro General Purpose Buckets provide fast, thorough discharge... easier loading... positive gate control.

New! Extra large, double clamshell gates and steep side slopes accommodate lower slump concrete mixes. Vertical center discharge eliminates segregation of the mix. Low loading heights (under 60") for Gar-Bro Buckets of two cubic yard capacity or less permit direct loading from most ready-mix trucks.

Gate control is easy and positive. Gates are non-jamming, grout-tight and self-closing. Buckets are equipped with manual gate control.

Eight bucket sizes range from ½ to 4 cubic yards rated capacity. Buckets can be equipped with rubber accordion hoppers or steel sub-hoppers.

Model "D" Buckets

Now in five sizes—1 to 4 cu. yd. rated capacities. Heavy duty, manually operated buckets for dry, low-slump concrete with large aggregate (up to 6"). Meet U.S.E.D. 3 to 1 ratio specifications. Air-operated models available.

See your Gar-Bro dealer today—
or write for complete information.

Gar-Bro Mfg. Co., Los Angeles, California • Peoria, Illinois
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GAR-BRO *The World's Most Complete Line!*
CONCRETE HANDLING EQUIPMENT

For more facts, use Request Card at page 18 and circle No. 283

Crews construct a temporary low ceiling in the bank lobby. Supporting steel posts go to the basement level. Adjustable joists span between I-beam headers. Planks on the joists were covered with 2 inches of rigid insulation, 2 inches of concrete, and a built-up roof.

The first of the larger girders brought to the site is a 57-ton, 75-foot-long, and 10-foot 6-inch-high member. A Mack truck from Shea-Matson, machinery movers, handled the haul job.

Cranes working on both sides of the existing structure carry the girder to columns for erection. At left is a Manitowoc 3900 60-ton crawler; a Manitowoc 50-ton rig is at right.

(*Continued from preceding page*)

building. During construction, most of the bank's offices were moved temporarily to nearby buildings, but teller windows remained open for business on the ground floor of the original headquarters.

In the initial phases of the construction, two of the three buildings on the site were completely demolished. Wreckers clipped off the top three floors of the bank headquarters, and a subcontractor built an 11-foot-high temporary roof to cover the main lobby. Working round the clock on a week-end, the men put up steel-pipe columns to support the I-beam headers that carried the adjustable Spanall joists. The pipe columns rose from the basement level through holes in the first floor to support the roof. Planking on the joists was covered with 2 inches of rigid insulation, 2 inches of concrete, and a 3-ply built-up roof. The existing structure was further abbreviated to 60 × 84 feet by chopping off 20 feet from the front and rear of the building.

Rigs work from river

Before excavation could commence, a sheet-pile wall had to be driven along the 360-foot river side of the site. To accomplish the job, Merritt-Chapman & Scott Corp., New York City, the subcontractor for the piling and excavation, brought in a barge-mounted American revolving crane. The 40-ton-capacity crane, handling a steam-driven hammer, knocked in the sheet-pile wall. As the excavation went down to an average depth of about 10 feet, the wall was braced by H-beams running back to interior pile caps. To leave room for driving foundation piles, the H-beam wale was bolted to the water side of the wall.

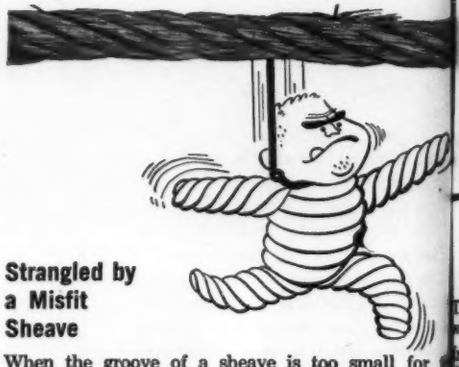
On the land side of the excavation, original stone foundation walls were used to retain the earth. The walls were braced by rows of H-piles on about 6-foot centers driven approximately six feet back from the original stone foundation walls. Horizontal timber bracing bridged the distance between the H-pile and the wall. Diagonal H-beam braces connected the vertical H-pile to an in-

Union Wire Rope

In Union, There Is Quality That Respond

Overloaded—Soon Exploded

The rated capacity of a wire rope is based on the breaking strength (catalog) divided by a safety factor applicable to the type of service or use. The grade of steel, type of construction and size of the rope determine tensile strength. It must be properly related to the loads it will carry, or costly and dangerous early failures are likely to occur.



Strangled by a Misfit Sheave

When the groove of a sheave is too small for rope diameter, pinching action quickly destroys rope—especially when it's overloaded. The vict shown here was knocked out in just 1½ hours service.

UNION Wire Rope Tuffys—Famed For Tough Job Performance

Tuffy Scraper Rope

Flexible enough to take sharp bends; stiff enough to resist looping and kinking when slack; highly resistant to the shock of load impact — that's Tuffy balanced construction. Mount a reel on your scraper—save wasting sound rope.

Tuffy Slings and Hoist Lines

Slings are a patented, 9-part machine-braided wire fabric that is next to impossible to knot or kink. Hoist lines have built-in strength, toughness, flexibility. Balanced—a top-performing team for handling every type of material. In addition to Tuffy, Union Wire Rope furnishes a complete line of slings.

Tuffy Dozer Rope

Mounts right on your dozer in a 150′ reel. When rope shows wear, just feed through enough to replace the damaged part. Saves rope, gives you a bonus of extra service. Also available in 300′ and 500′ reels.

Union Knows the Ropes—Comes Up With Solutions To Wire Rope Problems And we have 'em—more than 1600 standard constructions. Add to that the famous Tuffy family of special ropes and slings, custom-made for special needs and special uses. If none of these fit your needs, our research laboratory engineers and field staff are at your service. They'll build you just the rope or sling you need—with Union toughness and Union quality all the way. Ask your Union distributor—listed in the phone book Yellow Pages.

terior pile cap. In some cases, timber lagging was used between the H-piles.

There was little storage or working space on the site, so M-C&S made space on the river. It brought in another barge-mounted rig, the Cherokee, carrying a 75-ton Wiley revolving crane. Alongside the two cranes were moored two pontoon barges for the storage of material.

Trucks, carrying H-piles and steel sheeting, were easily unloaded by the revolving cranes. A truck parked on the adjacent bridge while one of the cranes swung the steel to the storage barge. The cranes were also used to feed the H-piles to the rigs working in the excavation.

Two pile-driving rigs—one on each side of the split excavation—drove the 1,100 H-beam piles that support the main tower and the 500 timber piles that support the pavilion. A Lima 1201 equipped with a Vulcan 80C hammer in fixed leads drove the 12-inch 53-pound piles down to hardpan. Generally, the piles had to be extended by welding one length to another. A Manitowoc 3000 with a Vulcan "O" hammer drove the 50-foot timber piles. Steam was furnished to both hammers from boilers on the floating rigs. Because of the irregular layers of silt, sand, and clay, the depth of penetration of the piles varied greatly. Some piles got bearing in a layer of sand at minus 70 to 80; others went down to hardpan at minus 130.

R-W Construction Co., Milwaukee, excavated the 25,000 cubic yards of material from the approximately 10-foot-deep hole under a subcontract from M-C&S. In the early stages of the excavation, a Bucyrus-Erie 38-B backhoe excavated for the interior pile caps. These had to be built first to provide foundations for the bracing of the cofferdam walls. After the bracing was placed, clamshells excavated the sand and silt for the exterior pile caps. The rigs loaded into trucks that hauled the material from the site.

Transit-mix concrete

Concrete rolled into the site in transit-mix trucks. Unloading at street level, the trucks chuted the concrete to the pile caps, foundation walls, and to a concrete hopper for wheeling to caps otherwise inaccessible. Caps on each side of the existing bank are 8 feet thick and continuous for the width of the excavation. A 2-foot-thick pressure slab covers the area between the caps, sealing the basement floor against the hydrostatic head. The top of the pile caps is separated from the basement slab by a 1-foot-rock fill. The fill serves to drain the area beneath the basement.

Steel erection

American Bridge, division of United States Steel, moved into the job this March to start setting the 5,500 tons of structural steel. One of its first jobs was to set the four big box girders that span the original bank. The 75-foot-long 14-foot-deep girders

A night move is made by the Lima 1201 pile-driving rig from the bottom of the excavation to one of the pile caps for a better position. The crane is being moved on wood mats.

make the span at two levels. Each girder arrived on the site in two longitudinal sections—one weighing 50 tons and the other weighing 55 tons. Men bolted them together to form the box after erection. All field connections in the building were made with high-strength steel bolts.

Two cranes—a Manitowoc 3900 and a 3500—had the ticklish job of setting the heavy girders in the confined space. The cranes also set the steel for the first six floors. Two guy derricks took over the job for the upper floors.

Personnel

H. W. "Shorty" Newell is project superintendent for Turner Construction Co. Hank Van Sickle superintends the work for Merritt, Chapman & Scott. Pat Corrie is superintendent for American Bridge. THE END

AWS eye-protection chart

■ The American Welding Society has published a chart giving the correct shades of glass to be used for proper eye protection in welding and cutting operations. On the left of the chart are listed the various soldering, brazing, cutting, and welding operations, and on the right, the correct shade numbers to use for each process.

Intended for display in welding shops, the Lens Shade Selector Charts are available at 50 cents each, or 10 charts for $4.50, from the American Welding Society, Technical Dept., 33 W. 39th St., New York 18, N. Y.

Tuffy® Tips

Profitably To Proper Use

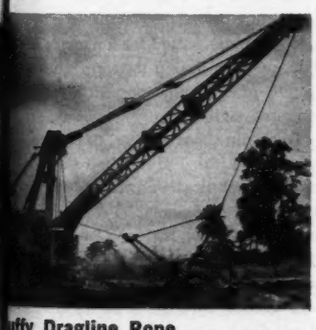
RIGHT WAY to Set Up Reel for Unwinding

The stock reel should be set up on jacks, so the rope will come from the under side of the reel.

In the picture (above), unwinding has started and the reel is turning faster than the rope is being pulled off. But no damage is done. Why? Because in coming from the under side of the reel, the rope is simply loosening, without forming loops or kinks.

WRONG WAY to Set Up Reel for Unwinding

The rope is coming from the top of the reel and forming loops as it overruns. These loops are likely to form kinks and dog legs, which can be ruinous to rope life.



Tuffy Dragline Rope

High abrasive resistance and super flexibility. Gives long service, dependable action in handling any material—wet or dry dirt, sand, gravel, rock, minerals. Goes smoothly on grooves—stops the drum when casting for full load.

Union Wire Rope Handbook of TUFFY TIPS... Free!

The "Tuffy Tips" shown here are quoted right out of Union's handbook. In it there are dozens of other priceless hints on the correct use of wire rope. The common abuses and how to avoid them. How to save costly injuries. Maintenance tips. The proper fittings and how to apply them. Recommended sizes. Many other facts and suggestions that will cut down your rope costs and help you get out of wire rope the full service we build into it. No charge. Write Union Wire Rope, Armco Steel Corporation, 2260 Manchester Ave., Kansas City 26, Missouri.

3-61

ARMCO Union Wire Rope

For more facts, use Request Card at page 18 and circle No. 284

Construction details of a model for a newly designed sign support for spanning wide modern highways is discussed by Robert C. Myers, left, U. S. Steel's director of market development, and Robert S. Holmes, manager of highway construction marketing. The tapered box truss hung between two trussed cantilever columns is one of many design concepts in the firm's new Highway Hardware Program.

New Tool for sign designers

With the advent of high-speed expressways and the need for "Vistavision" signs, designing and building a sign support has become a major engineering feat.

To aid highway engineers and consultants in the design of sign supports, United States Steel Corp. is making available a new technical notebook. The "Highway Hardware Technical Notebook, Vol. 1" contains engineering data and new design concepts for over-the-road steel signs and sign supports. The data is tabulated in easy-to-use charts to enable the engineer to meet his specific design requirements.

The designs conform to the specifications for signs and sign supports of the AASHO and ARBA joint committee. The most recent draft of these specifications was formed in November of last year and is soon to be formally adopted.

The designs show applications for seven basic grades of steel ranging from structural carbon steel (ASTM A7) to high-strength low-alloy steel (ASTM A242). The high-strength steel finds application in the design of the longer over-the-road spans. It has the additional advantage of being 4 to 6 times more resistant to rusting than normal carbon steels.

Major over-the-road sign-support designs in the notebook include: (1) a simple supported box truss of uniform section, well suited to standardization and easy to erect; (2) a rigid truss frame for the intermediate span range; and (3) a unique tapered box truss hung between two trussed cantilever columns, suited for longer spans. There is also design data for smaller single and double-posted ground-mounted signs.

To obtain these original design concepts, U. S. Steel drew upon the specialized technical knowledge of Wilbur Smith & Associates, design consultants of New Haven, Conn. U. S. Steel officials will introduce and present copies of the notebook to highway groups through a series of nation-wide technical presentations.

A second phase of the technical-information program is well under way. It involves engineering specifications and design concepts for steel safety guard and bridge rails, light standards, and right-of-way fence. These will be incorporated in a second Highway Hardware Notebook to be made available to highway people and metal fabricators later this year.

The design and engineering program was introduced by U. S. Steel officials at a gathering of the press and highway officials at Chicago on May 18. THE END

Look into this culvert
if you're looking for culvert that lasts

This 232-foot-long culvert will carry irrigation water under a new four lane highway near Livingston, Montana. It's made from USS AmBridge Sectional Plate: a tough, zinc-coated corrugated steel product that's famous for long life. Many steel culverts like this one have already outlasted the highways they were buried under.

USS AmBridge Sectional Plate is available in a complete range of sizes and is fabricated to meet all federal and state specifications. It's highly corrosion resistant and is pre-punched for fast assembly. Just smooth the grade line, set the sheets into place, bolt them together and then backfill. No need to build forms or sit out costly curing time.

American Bridge has a new booklet about USS AmBridge Sectional Plate. Write for your free copy. American Bridge Division, 525 William Penn Place, Pittsburgh 30, Pa.

USS and AmBridge are registered trademarks

This mark tells you a product is made of modern, dependable Steel.

General Offices:
525 William Penn Place, Pittsburgh, Pa.

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Ambridge • Atlanta • Baltimore •
Birmingham • Boston • Chicago •
Cincinnati • Cleveland •
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Houston • Los Angeles •
Memphis • Minneapolis • New York •
Orange, Texas • Philadelphia •
Pittsburgh • Portland, Ore. •
Roanoke • St. Louis •
San Francisco • Trenton •
United States Steel Export Company, New York

USS **American Bridge Division of United States Steel**

For more facts, use Request Card at page 18 and circle No. 285

Superintendent Mel Clendenan and one of the Le Roi 600 compressors used on this tough rock excavation operation near Barry's Bay, Ont.

Drilling keeps good pace despite low temperatures

When Finley W. McLachlan, Ltd., tackled a 10¼-mile highway reconstruction job south of Barry's Bay, Ont., Canada, it counted on Le Roi 600 compressors with dual drill rigs to beat the schedule. The drilling involved removal of 145,000 cubic yards of rock in order to straighten and widen the roadway.

One worry for superintendent Mel Clendenan was the sub-zero temperatures (minus 35 to minus 45 degrees). Another was the 10 to 12 feet of overburden covering some formations.

But cold-weather starts were no problem; compressor engines were primed with ether and run unloaded. Five minutes later they delivered their rated capacity. "On steep grades we tied into the trees and kept on drilling," Clendenan reports. With six Le Roi 600's, crews shot sections measuring ½ mile or more at one time.

Write to the Le Roi Division, Westinghouse Air Brake Co., Dept. C&E, Sidney, Ohio, or circle No. 52 on Request Card that is bound in at page 18 of this issue.

Atlas Copco receives international award

■ Atlas Copco has received an award in the 1961 World Mining Annual Blue Ribbon Equipment Awards Contest for its introduction of the Swedish ladder drilling method.

The awards are made annually by an international panel of experts to manufacturers who have made a significant contribution during the previous year to the technological advancement of the minerals industries in the form of a new or improved product. Judges met in New York City; Cologne, West Germany; and London, England.

The Swedish ladder drilling method consists basically of a conventional air leg with retractable pusher, mounted on a slide similar to a steel ladder. A rock drill, resting in a simple cradle mounted to this ladder, can easily be advanced or withdrawn by means of the retractable pusher that can be locked on the ladder rungs. Drill-steel centralizers fitted to the front of the ladders facilitate collaring.

Annual BPR bulletin on highway statistics

■ "Highway Statistics, 1959," a new 153-page bulletin, has been published by the Bureau of Public Roads, U. S. Department of Commerce, Washington, D. C. The bulletin, fifteenth in an annual series, contains statistical and analytical tables of general interest on motor fuel, motor vehicles, highway-user taxation, state and local highway financing, road and street mileage, and federal aid for highways.

The booklet is available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at $1 per copy.

Hercules appoints two

■ The Explosives Department of Hercules Powder Co., Wilmington, Del., has announced two executive appointments.

Henry V. Chase, Jr., has been named director of operations for the department's commercial explosives division. He has been manager of explosives operations since 1957.

Albert R. Ely has been appointed manager of industrial relations. He was previously assistant to the department's director of operations.

For more facts, use Request Card at page 18 and circle No. 286 ▶

BY KEN DASKEY

About the Author. Ken Daskey is well qualified to provide valuable assistance to his customers. He has been with the Company for 14 years, and spent 10 years in Commercial sales. In addition, he has received specialized schooling in an asphalt training course at his Company's Whiting, Indiana, refinery.

★ ★ ★

Asphaltic Concrete Corporation paved a two-mile stretch of one of the most heavily traveled streets in St. Louis using 7 P.M. to 3 A.M. shifts. The route carries U.S. 66, 50 and Missouri 30, in addition to a tremendous load of city traffic southwest through the city. The specification hot mix was layed on the 80-ft. wide street in 12 ft. strips so that the street was always open to traffic. Putting down 1,350 tons of Asphalt established a new all time eight hour shift record for the city of St. Louis.

We played a part in the job by always having Asphalt available for delivery to A.C.C.'s batching plant on time. Deliveries were from American's Wood River refinery, less than fifteen miles from the job. Being sure of deliveries, A.C.C. could plan work and *know* it could keep to the schedule.

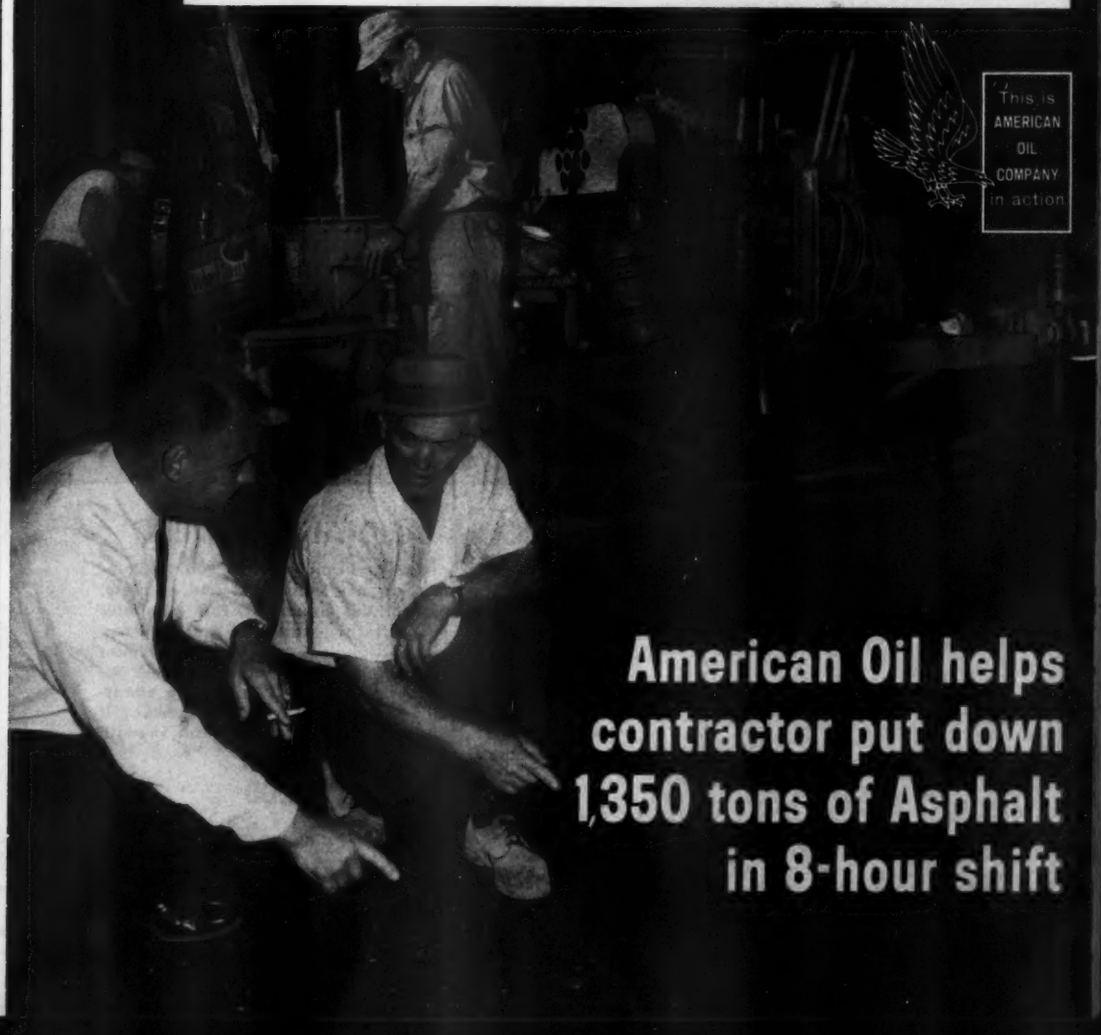
When Asphaltic Concrete Corporation buys Asphalt from American Oil they get three big benefits: (1) strategically located refineries—a source of supply close to the job. (2) A supplier of Asphalt they can depend upon. (3) Technical assistance to help them trouble-shoot the job.

Get the full story about American Oil Asphalt. Call your nearby American Oil Company office.

AMERICAN OIL COMPANY

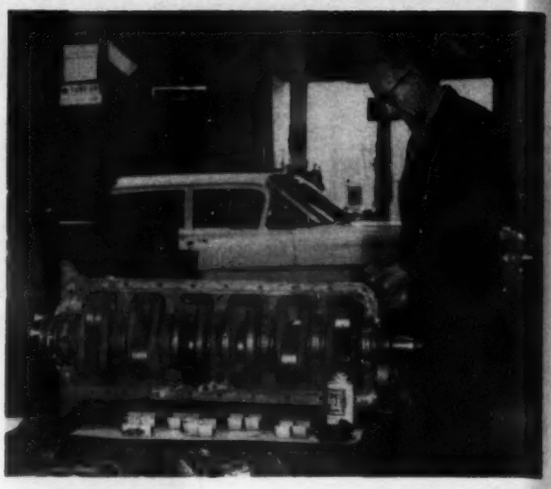
910 South Michigan Avenue, Chicago 80, Illinois

Night shift and the American Oil man is there. American Oil's Ken Daskey discusses application of Asphalt with Pete Pellin, job superintendent for Asphaltic Concrete Corporation. Night shift idea won editorial praise from a St. Louis newspaper.



American Oil helps contractor put down 1,350 tons of Asphalt in 8-hour shift

New sleeves, pistons, rings, bearings, and other parts go into the rebuilding of an International 406 engine that will be held on a replacement basis.



Quick changes cut down time

Preventive maintenance is a first concern of A. J. Raisch Paving Co., San Jose, Calif., and this is backed up by a fast replacement policy in case of equipment breakdown. This completely reconditioned Le Roi engine is assembled and ready for installation in the Barber-Greene paver, background. The policy keeps down time to a minimum and saves the firm plenty of cash.

Efficient maintenance, featuring quick changing of anything from tires to complete engines, holds down time to a minimum for the fast-moving spreads of the A. J. Raisch Paving Co., San Jose, Calif.

With a fleet of more than 30 trucks serving five bituminous-paving machines, this contractor found that truck down time often became a vital factor in the economy of the entire business. The 2-phase maintenance program, supervised by maintenance superintendent Mario "Bosco" Boskovich has eliminated most of that down time.

Preventive maintenance, the first phase, nips most potential breakdowns in the bud. The equally important second phase—replacing a failing component in a hurry—gets the machine back to work with the minimum of lost time.

Raisch specializes in bituminous paving and closely related work, including light grading and base. The paving of streets in new subdivisions and for municipalities, school grounds, filling stations, and parking areas for industrial buildings and shopping centers comprises a major portion of the work done. Projects range in size from $5,000 to $1 million. Practically all of the work is done within a radius of 15 miles from the company's headquarters in San Jose.

The company processes its own aggregates in crushing and screening plants at two locations in or near San Jose. Bituminous concrete is produced in a Standard asphalt plant with a 6,000-pound-batch pugmill. The plant is located near one of the pits in the south part of the city.

Tire maintenance

The fleet of 30 International trucks, each with ten or more tires, has more than 300 tires on the road when the Raisch spreads are working. Much of the work is in new subdivisions and around new commercial and industrial buildings where an abundance of nails increases the possibilities of tire puncture. Tire maintenance is

Attachable in 30 seconds

5000 feet in 1 Hour

ZORN ASPHALT CUTTER*

Conventional techniques and apparatus for cutting pavements and roadbeds are now outmoded and obsolete, with the introduction of this automatic, rotary asphalt cutter. As illustrated, attached to a road grader, it can cut 5000 lineal feet of asphalt in one hour. One man equipped with a pneumatic paving breaker would require one day. The Zorn Asphalt Cutter is also adaptable for attachment to other construction equipment. It weighs 50 lbs., possesses great durability and strength and is guaranteed to perform as stated.

Price $125.00

Write for full information and literature

MEREDITH PAVING CORPORATION

Union Landing Road, Riverton, N. J.

ZORN ASPHALT CUTTER

* U.S. Pat. #2,935,308

CONTACT THE ZORN DISTRIBUTOR NEAREST YOU

CLARK-WILCOX CO.
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DRAVO-DOYLE COMPANY
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J. C. GEORG CONSTRUCTION EQUIP., INC.
Syracuse, N. Y.
Schenectady, N. Y.
GEORGE MALVESE & CO., INC
Hicksville, L. I., N. Y.
New York City, N. Y.
SERVICE SUPPLY CORP.
Philadelphia, Pa.
Lancaster, Pa.
TYLER EQUIPMENT CORP.
East Longmeadow, Mass.
Wallingford, Conn.

For more facts, use Request Card at page 18 and circle No. 287

This is the reserve supply of components for trucks and other machines. The units, including transmissions, differentials, power dividers, and compressors, are completely reconditioned and ready for quick installation.

truly an important problem.

While numerous flat tires seem inevitable, the resulting down time is held to a minimum. Since all of the trucks use 9:00 × 20 tires, Raisch keeps at least 20 spares on hand, mounted on the wheels and ready to install. When a driver calls in to report a flat, the service rig is on its way in minutes, and the truck is usually back in service within a half hour.

Of equal importance to the quick changes in the field are the daily and weekly shop checks. All of the trucks are parked in a large garage at night. Early each weekday morning, a serviceman checks every tire and changes all of the flats, so that every truck is ready for the road at starting time.

On Saturday, when all of the trucks are at the shop, the servicemen make an even more comprehensive tire check. Each tire is checked for pressure and examined for nails, bruises, or other damage, and the necessary changes are made. This service has proved especially effective, reducing the number of flat tires on succeeding days.

The tire service work is subcontracted to a local tire distributor, Commercial Tire Service. Commercial makes all of the tire repairs, including recapping, supplies the men and service trucks to make the field changes, and provides the daily and weekly shop checks. Raisch also has a pickup with an air compressor that is available for emergency service in case Commercial's rigs are not available.

In addition to the trucks, the contractor's rubber-tire fleet includes ten Cat No. 14 and 12 motor graders, five Michigan 210 scrapers, three Michigan 280 dozers, and a Scoopmobile LD-8A. At least two spare tires of each size are always kept on hand for these machines. The motorgrader tires are mounted on wheels to facilitate quick field changes. Larger machines have tires mounted in the field as required.

(*Continued on next page*)

This mechanic specializes in maintaining the paving rigs. Shelves in this corner of the parts room contain the most commonly needed parts for the laydown machines.

A workman arrives at the shop, at 4:30 p.m. daily to service trucks after their day's work. An International is being lubricated and serviced in the garage.

A BOLD BREAK-THROUGH

in self-priming contractor pumps

Available in gasoline-electric-universal drive models. Engine-driven models come equipped with discharge priming tee, strainer and nipple for suction hose. Wheel kits available as option.

NEW 5 & 7 SERIES SPC's

Barnes new 1½" and 2" self-priming centrifugal pumps represent the greatest advance in hydraulic design in over twenty years! They offer TEN new operating and servicing features that can mean substantially more efficiency on all your pumping jobs. Outmodes every other pump in its class—with an unmatched combination of *years ahead* engineering achievements.

PRIMES IN JUST 16 SECONDS

PEAK OPERATING PERFORMANCES

EASIER AND FASTER SERVICING

PORTABLE WEIGHT • RUGGED DESIGN

33,000 TO ONE ECONOMY

FREE LITERATURE

You owe it to yourself, your company and your customers to get complete information on Barnes' sensational new SPC pumps. Our descriptive literature contains comprehensive specifications, performance curves and other vital details. Write today... it could be the most profitable idea of the year.

BARNES®

BARNES MANUFACTURING CO.
Mansfield, Ohio | Oakland, Calif.

6113

For more facts, use Request Card at page 18 and circle No. 288

TARCO

Pots, Buckets, Squeegees

All sizes and styles for handling HOT or COLD Tar or Asphalt.

For these jobs: Crackfilling, Pavement Construction and Repair, Waterproofing, Pipe Coating, Sealing, Dust Laying, Carrying.

All pots and buckets are made of all welded steel (no crimping, no soldering, no riveting). Perfectly balanced, no-splash hoods, wide comfortable handles.

Ask your nearest dealer or write for details

TARRANT MFG. CO.
31 Jumel Place, Saratoga Springs, N. Y.

For more facts, circle No. 289

A Cat D9 is being worked on in the field by a Raisch field mechanic using a Chevrolet pickup, and a Peterson Tractor Co. serviceman with a Ford F-350 truck.

This field lube truck carries eight Lincoln reels supplied with Standard Oil lubricants. The Chevrolet truck also carries an Ingersoll-Rand compressor.

This Chevvy pickup carries a Hobart electric welder, oxyacetylene cutting equipment, a vise, a supply of welding rod, and other equipment.

The **HEART** *of seepage water control is the* **PUMP** *on the job!*

To keep a river channel dry...

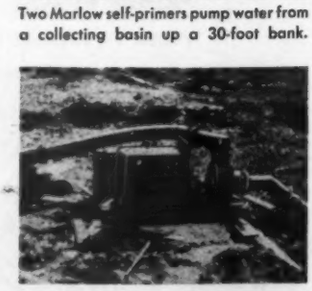
2 *MARLOWS* PUMPED 360,000 GPH —24 hours a day!

When work was started on the main channel improvement at Galop Island in the St. Lawrence River, it was necessary to reduce flow by diverting water through a relief channel. This channel was dug on the American mainland near Red Mills, New York. When the excavation was started, a cofferdam was built at the upstream end of the job to hold back the water.

Seepage water became a problem as the digging progressed to a grade below the level of the river. For seepage control, Morrison-Knudsen Co., Inc., installed two Marlow self-primers. The pumps were located at a collecting basin at a low point of the excavation. One 10-inch pump was set on the bank, while a second unit *was placed on a raft in the basin!* Both pumps were used during peaks to carry water over the 30-foot embankment into the river. The pumps, with a combined capacity of 360,000 GPH on continuous service, can actually handle up to 400,000 GPH in emergencies.

In addition to a complete line of AGC rated pumps, Marlow also builds the famous "Mud-Hog" diaphragm pump. For full information write today for Bulletin C-09 and the name of your Marlow dealer.

Two Marlow self-primers pump water from a collecting basin up a 30-foot bank.



This Marlow pump operated on a 24-hour schedule to control seepage water.

Marlow PUMPS

MARLOW PUMPS

DIVISION OF BELL & GOSSETT COMPANY

MIDLAND PARK, NEW JERSEY

Morton Grove, Illinois • Longview, Texas

D-479

For more facts, use Request Card at page 18 and circle No. 290

(Continued from preceding page)

Changing engines, transmissions, or differentials takes a bit more time than changing tires, but this contractor believes in the same principle of having them ready for quick changes. Superintendent Boskovich keeps three complete engines for the International trucks on hand and one spare Hercules JXD, which is common to most of the 15 tandem and 3-wheel rollers.

These are not stripped blocks or partly assembled engines, they are complete units ready to run. When a truck engine must have major work, it is removed bodily from the truck, and a reconditioned engine takes its place. The exchange rarely ties the truck up for more than one day.

Complete engines ready

In the shop, the mechanics completely recondition the engines, stripping them down to the bare blocks, putting in new sleeves, pistons, rings, and bearings, and replacing all worn parts. In a few days the old engine is "like new" and ready to take its place in another truck. In the course of 150,000 or more miles of service, a truck may undergo a number of these replacements. Some of the individual engines may be rebuilt as many as ten times.

Other components such as transmissions, differentials, power dividers, compressors, etc., are handled on the same basis. There is always a completely reconditioned unit ready for quick installation in the truck.

With machines like the pavers, motor graders, scrapers, and the three Caterpillar D9 tractors at the crushing plant, it is impractical to stock complete components. These machines are usually repaired right on the job. The local distributors, Peterson Tractor Co. on the Caterpillar equipment and Buran Equipment Co. on the Michigans, maintain good supplies of parts in nearby warehouses and have trained field servicemen with well equipped rigs to assist Raisch's crews on these jobs.

A most important factor in speeding the response to calls for emergency field service is the Motorola mobile radio system. Base stations in

the office, shop, and plants can keep in constant communication with the foremen of the several crews in the field.

Systematic winter overhaul

When the winter rains bring most bituminous paving to a halt, superintendent Bosco begins a systematic and thorough overhaul program. One at a time, the motor graders, then the paving machines, rollers, and trucks are brought into the shop and carefully checked. All necessary repairs and replacements are made to put each machine in the best possible condition to start the next season.

In repairing and reworking the machines, Bosco attempts to avoid modifications and improvisions. When possible, the machines are refitted with standard parts and attachments. If it does become necessary to improvise, he keeps a very close eye on the improvisions to be sure they are functioning properly and are filling some need that cannot be met by a standard part or attachment. This speeds and simplifies the replacement of parts that become worn or damaged.

Daily lubrication

At the close of each day of work, all of the trucks are brought into the garage. A night serviceman lubricates them, checks and changes oil, and provides the other necessary maintenance services. A well lighted grease pit in the garage building is fitted with Lincoln lubricating equipment for this work.

The water trucks are usually lubricated every 500 miles, since they normally get less mileage than the other trucks. The automobiles and other trucks are lubricated each 1,000 miles. The serviceman changes oil only as required.

The heavy equipment that does not get into the garage every night is serviced in the field by a well equipped lube rig. Operated by one man, this rig visits the several spreads during lunch hour or immediately after working hours to give each machine its daily lubrication and other service.

The lube truck is a Chevrolet cab-over-engine flat-bed model carrying an Ingersoll-Rand air compressor and eight Lincoln pumps and reels in addition to its supply of Standard (of California) lubricants. In the eight dispensing reels are three kinds of motor oil, automatic transmission fluid, hydraulic oil, chassis lubricant, gear lubricant, and air.

In addition to the mobile equipment, Raisch operates two crushing and screening plants and two hot-mix plants. An oiler at each of these plants handles the complete servicing of this stationary equipment.

A separate fuel truck makes the rounds of all of the spreads daily, supplying the heavy equipment with gasoline or diesel fuel. The trucks are fueled from pumps at the garage.

In addition to the many factors that keep the Raisch spreads operating

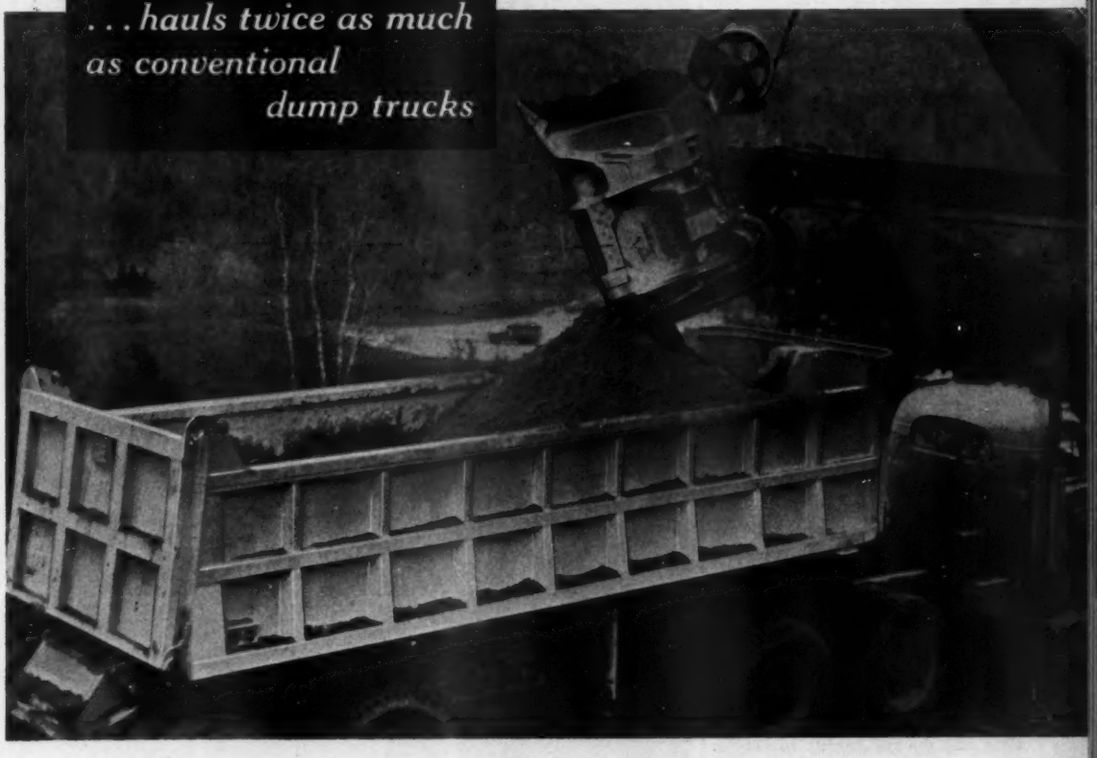
(Continued on next page)

Tire maintenance is turned over to Commercial Tire Service, a local tire distributor, which checks all tires on the trucks in the yard or garage on Saturdays and changes any that are punctured, bruised, or otherwise in need of repair. The pickup has a hydraulic tail gate that helps men get the heavy tires into the box.

IN ROUGH TERRAIN—

HEIL-TEC Dump Trailer

. . . hauls twice as much as conventional dump trucks



In extremely rough terrain, this specially designed 20-yd, 18-wheel HY-SPILL frameless dump trailer hauled approximately *twice* the payloads that comparative 10-wheel dump trucks carried at about the same speed.

This outstanding performance was achieved for Landers & Griffin, Inc., Portsmouth, N. H., on their job in the heart of the White Mountains near Littleton, N. H.

"It is only because of the remarkable stability of the HY-SPILL design, along with the flotation of 18 tires and the traction of two axles, that such performance is possible," said a spokesman for Landers & Griffin. "If this was attempted with a conventional frame trailer, repeated tip-overs would be the result."

TEC offers unsurpassed know-how in dump trailer design. Every TEC unit is engineered for the kind of applications you specify and for the area where it will operate. Choice of single-axle and tandem semi-trailers for use with either single-axle or tandem tractors. Single-axle trailers are available in body lengths from 16 to 28 ft, and tandem-axle units in lengths from 20 to 34 ft.

HY-TEC FRAMELESS TYPE
U.S. Patent No. 2,846,267

HY-SPILL FRAMELESS TYPE
(Available Only From Heil)
U.S. Patent No. 2,853,341

Other on-the-job advantages of TEC design

- Exclusive HY-SPILL design holds front tandem wheels on ground while dumping . . . provides 38- to 40-in. spill height from end of body floor to ground for dumping into high hoppers, paving and spreading machines.
- Body can be raised or lowered while moving, with better stability than any other hauling unit.
- Trailer can be dumped while jackknifed, speeds dumping and turn-around in tight places.
- Exclusive design of TEC frameless dump trailers cuts dead weight . . . lets you haul up to 4,000 lb more payload — even more where longer axle spacing is desirable or when aluminum bodies are used.

TEC Division THE HEIL CO.

DUMP BODIES and HOISTS

TEC Division, 1285 West 70th Street, Cleveland 2, Ohio

For more facts, use Request Card at page 18 and circle No. 291

Two International 10-wheel dump trucks undergo repair in a portion of the Raisch shop. Down time on this equipment is low. An operator is assigned one rig and he takes care of it; if his truck is down, he misses work.

(Continued from preceding page)

with a minimum of down time is another, at least as important: the careful operation of the equipment by thoughtful men. Each truck, as well as each heavy machine, is assigned to a particular driver. This man drives it day after day—in many cases for years—taking the responsibility for driving carefully, reporting any irregularities that need a mechanic's attention, and checking on the daily and periodic servicing.

Each of these men knows that when his truck is operating, he is working. If the truck is out of service, he may miss a day's work. He has a personal interest in keeping the machine in the best possible operating condition. Most of the Raisch operators are old-timers, some having 30 or more years of service with the company.

Personnel

Heading the company's management personnel are: president A. G. Raisch, executive vice president Patrick W. "Pat" Regan, vice president A. G. "Bo" Raisch, Jr., general superintendent James E. "Jim" Gibson, assistant superintendent Louis H. Saldivar, and plant superintendent Eugene L. "Gene" Cooper. Maintenance superintendent Boskovich handles all of the maintenance operations and reports directly to Gibson and Regan. THE END

A serviceman is being dispatched on an emergency call by maintenance superintendent Mario "Bosco" Boskovich. He gets plenty of use out of the Motorola radio system, speeding parts, tires, and servicemen to rigs in trouble from his office in the shop. The base station is in an adjacent office building.

Joint Armco and NSPE scholarships awarded

■ Four-year civil engineering scholarships have been awarded to five high school seniors in a nation-wide selection program sponsored by the Armco Foundation in cooperation with the National Society of Professional Engineers, Washington, D. C.

The $3,000 scholarships, granted on the basis of the student's scholastic records and aptitudes for engineering, were awarded by a selection committee made up of professional engineers and representatives of Armco Drainage & Metal Products, Inc., a subsidiary of Armco Steel Corp.

The 1961 winners are: Jeffrey Martin, Miami, Fla.; Samuel Morris, III, Denville, N. J.; David Pedersen, Watson, Minn.; William Rogers, Logansport, Ind.; and Andy York, Santa Fe, N. Mex. They may attend any college or university that is accredited by the Engineers' Council for Professional Development.

U. S. Steel news

■ The board of directors of U. S. Steel Corp., New York, N. Y., has named Henry T. Heald, president and a trustee of the Ford Foundation, as

a director to succeed the late Cason J. Callaway.

U. S. Steel has again won the National Safety Council's Award of Honor for an all-time low accident-frequency record set by the corporation's steel-producing divisions. The divisions, winning the award for the sixth time in ten years, established an all-time low accident-frequency rate of .79 per million man-hours worked.

The corporation has licensed Jones & Laughlin Steel Corp. to manufacture and sell products of Cor-Ten steel, a high-strength, low-alloy steel.

A second continuous quenching and tempering line has been installed at U. S. Steel's Homestead District Works. The line, now operating at the plant's 160-inch plate mill, is designed to meet growing civilian and military demands for heat-treated steel plates.

Chain Belt appoints

■ James F. St. Vincent has been named sales representative in the central-states district by the construction machinery section of Chain Belt Co., Milwaukee, Wis. Since 1959, St. Vincent has been a sales engineer in the bin and batch department.

Thor appoints two to overseas posts

■ Clarence B. Bergren, formerly manager of industrial sales for Thor Power Tool Co., Aurora, Ill., has been transferred to Tynemouth, England, as managing director of Thor Tools, Ltd., British manufacturing subsidiary.

Samuel P. Gartland has been transferred to Turin, Italy, as managing director of FIAP, Thor's newly acquired manufacturing subsidiary. He previously held the post of regional industrial sales manager, with headquarters in Indianapolis.

230,000 MILES WITHOUT AN OVERHAUL!

OLD PRO

That truck engine on the opposite page is one of evrolet's famous Thriftmaster 6's—and if it looks a bit battle-scarred, there's a good reason! This one s just turned 230,000 miles, working for Earl McDaniel of Dallas Texas, on a hustling round-the-clock mail delivery job. *And here's the stopper: this engine has never been overhauled. It has required only routine intenance over all those miles.* That, you'll agree, is professional *truck* power at its dollar-saving best. at's the way it is with the most widely used engine in the business—Chevy's Thriftmaster 6!

rely does any truck engine—even a Chevy Thriftster 6—run up a performance record like this one. We nt it out here merely as proof that the Thriftmaster 6 gs *staying power to spare* to any job it tackles. It's dence that Chevrolet puts real *truck* "horses" under hood—in a light-duty power plant that's built to last and outsave any other you can name.

The Thriftmaster 6 provides the basic power for Chevy's conventional light-duty truck line. *Standard* in pickups, panels, light-duty stakes, delivery vans and the Suburban Carryall, it's the end product of many years of engineering refinement.

It provides economy-contoured camshaft and improved carburetion to give you extra power, extra miles from every gallon of gas. Also, there's a forged steel crankshaft, high quality steel and steel alloy valves, durable precision bearings, full pressure lubrication system, oil-bath air cleaner—all contributing to longer engine life and greater overall economy. This is the most experienced truck engine in the business, and it's ready to wade into your roughest work and keep you way ahead on fuel and maintenance expense. It'll pay you to check into it at your Chevrolet dealer's! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

lling air mail from airports to town on a stop-watch edule is a 24 hours a day, 7 days a week responsibility l McDaniel, U.S. Mail Contractor, shares with his '59 ry ½-ton panel. And, according to Mr. McDaniel, after ,000 miles, the truck "still purrs like a kitten . . . hasn't or needed an engine overhaul. The pan has never been the valves have never needed grinding."

THRIFTMASTER 6 PERFORMANCE DATA

Gross Horsepower	135 @ 4000 rpm
Net Horsepower	115 @ 3600 rpm
Gross Torque, lb-ft	217 @ 2000 rpm
Net Torque, lb-ft	195 @ 2000 rpm
Piston Displacement	235.5 cubic inches
Bore and Stroke	3⅜" x 3⅛"
Compression Ratio	8.25 to 1

961 CHEVROLET STURDI-BILT TRUCKS CHEVROLET

For more facts, use Request Card at page 18 and circle No. 292

Convention Calendar

July 4–7 National Society of Professional Engineers
Annual meeting, Olympic Hotel, Seattle, Wash. Paul H. Robbins, executive director, NSPE, 2029 K St. N.W., Washington 6, D. C.

July 10–12 American Society of Landscape Architects
Sixty-second annual meeting, Harvest House, Boulder, Colo. Samuel Huddleston, general chairman, ASLA, 2935 S. Josephine St., Denver 10, Colo.

July 17–19 School for Highway Superintendents
School, Cornell University, Ithaca, N. Y. J. W. Spencer, highway research and extension engineer, SHS, Department of Agricultural Engineering, Riley-Robb Hall, Cornell University, Ithaca, N Y.

July 23–25 National Bituminous Concrete Association
Midyear meeting, French Lick-Sheraton Hotel, French Lick, Ind. NBCA, Suite 908, 1145 19th St. N.W., Washington, D. C.

August 14–17 Fundamentals of Occupational Safety
Ninth annual course, Pleasant Hall, Adult Education Center, Louisiana State University, Baton Rouge, La. J. C. McCollister, General Extension Division, Pleasant Hall, Louisiana State University, Baton Rouge, La.

August 20–25 National Shade Tree Conference
Conference, Hotel Leamington, Minneapolis, Minn. L. C. Chadwick, Dept. of Horticulture, Ohio State University, 1827 Neil Ave., Columbus 10, Ohio.

September 6–8 New York State County Highway Superintendents' Association
Summer meeting, Concord Hotel, Kiamesha Lake, N. Y. Harry R. Mason, secretary, 1420 Western Ave., Albany, N. Y.

September 11–15 and 18–22 Fundamental Principles of Nondestructive Testing
Summer conference course, Ohio State University, Columbus, Ohio. Dr. Robert C. McMaster, course supervisor, Department of Welding Engineering, Ohio State University, 190 W. 19th Ave., Columbus 10, Ohio.

September 14–15 Engineering Management Conference
Joint conference of ASME and AIEE, Hotel Roosevelt, New York, N. Y. American Society of Mechanical Engineers, Meetings Department, 29 W. 39th St., New York 18, N. Y.

September 24–27 Public Works Congress & Equipment Show
Show, Municipal Auditorium and Hotel Leamington, Minneapolis, Minn. Robert D. Bugher, executive director, American Public Works Association, 1313 E. 60th St., Chicago 37, Ill.

September 25–28 American Welding Society
Fall meeting, Adolphus Hotel, Dallas, Texas. F. J. Mooney, convention manager, American Welding Society, 33 W. 39th St., New York 18, N. Y.

September 25–28 Industrial Building Exposition and Congress
Exposition and congress, Coliseum, New York, N. Y. Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

T A B engineering firm moves to new quarters

■ T A B Engineers, Inc., Chicago, Ill., has moved to new headquarters at 520 N. Michigan Ave.

T A B provides professional technical engineering service to industry, including plant layout, new-product development, and special machine design. The firm specializes in automation and design, building, and installation of automated product lines.

A Euclid 24-yard bottom-dump loads embankment material directly on sod for a section of Interstate I-90 at Deer Lodge, Mont. If excavation had been done, backfill up to 20 feet deep would have been required for miles.

When subsoil is too soft to support haul rigs, contractor is forced to

Place embankmen right over the sod

Instead of the usual procedure of stripping the sod and topsoil, the contractor on a Montana grading job found it a virtual necessity to leave the sod in place and build the embankment on it. The heavy sod blanket supported the haul units that laid down the first lift of the fill; without the sod, the rigs would have bogged down in the marshy underlying soil.

The alternate design would have been to strip the sod and excavate the soft material down to solid footing. This would have meant excavating to depths up to 15 or 20 feet for a distance of several miles. The amount of backfill required, together with the cost of excavation, would have made the total cost prohibitive.

Shallow lifts

Instead, the grade was built by placing 4 to 5 feet of good granular borrow material right on the sod surface of the marshy area. This was laid down in shallow lifts and thoroughly compacted. Some 15 inches of minus 4-inch subbase is being placed over this grade. It will be followed by a 6-inch lift of minus 2-inch base and a leveling course of ¾-inch material under the 3-inch 2-course asphaltic concrete paving.

This unusual operation is being done by the Holland Construction Co., Bozeman, Mont., on a portion of a 9.6-mile section of Interstate I-90 at Deer Lodge, Mont. The work is being done under a $1,566,000 contract with the Montana State Highway Commission. The contract includes more than a mile of 4-lane divided highway in a bypass around the town of Deer Lodge. The remainder is a single 2-lane roadway.

A substantial part of the 1.6 million cubic yards of earthwork is borrow. Much of it, required to build

Euclid loaders are fueled and lubricated during the lunch shutdown and between shifts. The service crew operates with a Chevrolet truck carrying a 750-gallon fuel tank and Alemite lube equipment.

New steels are born at Armco

Small crews quickly install ARMCO LINER PLATES

Steel for strength, economy, durability

On a typical tunneling job, a two- or three-man crew can efficiently handle the whole project—holding down labor costs. One man excavates ahead of installed plates; a second bolts on curved and corrugated metal Armco Liner Plates, ring by ring; and a third member removes excavated earth and brings in plates.

For example, Armco Liner Plates used to form a conventional 70-inch-diameter tunnel weigh 37 pounds each. Five of these plates form a complete ring. One man easily handles these plates, and can quickly bolt them together. Work goes fast in any weather.

If you would prefer to subcontract your tunneling jobs, Armco Construction Department will do the work for you on a fixed-price basis.

For design and installation data, write us. **Armco Drainage & Metal Products, Inc., subsidiary of Armco Steel Corporation, 6891 Curtis Street, Middletown, Ohio.**

ARMCO Drainage & Metal Products

For more facts, use Request Card at page 18 and circle No. 293

One borrow pit is worked by two loaders to supply most of the 1.6 million yards of material needed for the embankment. This Euclid loader is pulled by a Cat D8 and pushed by a Euclid bottom-dump that is partly loaded to give it good traction in this material.

The other Euclid loader is pulled by a Cat D9 that needs no help. With two loaders at work, "Euc" bottom-dumps could pull in behind the one that had the shortest lineup waiting. In all, there were nine 24-yard and three 13-yard Euclids on the haul work.

the long embankment across the marshland, was loaded from a single large borrow pit by two Euclid loaders and hauled by a spread of Euclid bottom-dumps.

One of the loaders was pulled by a Cat D9 tractor. The other had a D8 in front and a partially loaded "Euc"' bottom-dump pushing from behind. The material was loaded into a fleet of nine "Euc" 24-yard bottom-dumps and three of the 13-yard models. The two loaders and twelve haul units moved in steady progression around the borrow pit. Empty rigs coming into the pit lined up behind the loader with the fewest rigs waiting. This cut down on the waiting time and kept both loaders busy practically continuously. Even when one of the loaders was temporarily out of service, the rest of the operation continued at a slightly slower pace.

Sod carries loads

In starting a new section of fill, the haul units maintained good speed as they left the existing fill and moved out onto the grass, dumping their loads as they went. They made no attempt to turn until the loads were completely dumped and the rear wheels had cleared the dumped material. Then the empty rigs were able to turn around and return to the old fill without difficulty.

A dozer spread and shaped the material so that subsequent loads could be dumped at high speeds. While the movement of the heavily loaded haul units over the embankment provided practically enough compaction, the contractor kept a Ferguson 25-ton self-propelled rubber-tire roller working each lift as it was laid down.

(Continued on next page)

A Ferguson 25-ton rubber-tire roller compacts material dumped on the grade after blading.

For more facts, use Request Card at page 18 and circle No. 294 ▶

Better Balanced Euclid C-6 gets more work done!

Owners of the "Euc" C-6 report that it's the best balanced tractor in the 200 h.p. class. Low center of gravity and close mounting of blades made possible by a rear-mounted radiator eliminate "nosing down" in heavy dozing work. The C-6 works easily on slopes where other crawlers can't be used because they won't hold on . . . and lower ground pressures let the "Euc" work in soft going that stops competitive tractors.

You've really got to see a C-6 at work to know what its excellent balance means in performance and productive capacity . . . your Euclid dealer will make arrangements, so get in touch with him soon.

C-6 *. . . lowest cost crawler in the 200 h.p. class . . . and most versatile by far!*

GM GENERAL MOTORS EUCLID

EUCLID

DIVISION OF GENERAL MOTORS, HUDSON, OHIO

Plants at Cleveland and Hudson, Ohio and Lanarkshire, Scotland

An old Euclid scraper is being rebuilt into a huge water wagon with a capacity of at least 8,500 gallons. The tank is fabricated of welded steel plates by the contractor's shop crew.

Wet material is excavated from a roadway cut after a rain deposited a substantial amount of water in an area that had been almost brought to grade. A Cat D9 tractor pushes the Cat DW20 scraper.

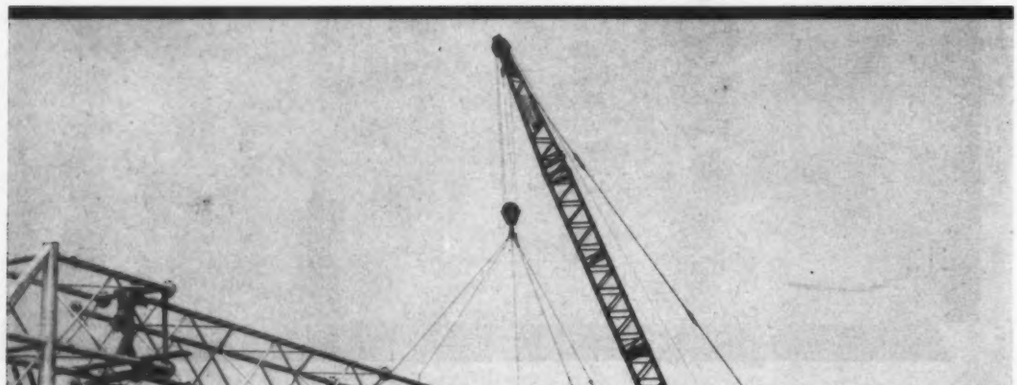
NO TRAFFIC JAM

CRANEMOBILE.

Makes Lift...
6 Minutes Later
Traffic Flows Again

The overhead support being erected here by the H. John Homan Co., Collingswood, N. J., for the Delaware River Bridge Authority, will carry directional signs for eight traffic lanes. While work was in progress, all traffic was halted — but, not for long. From the time Homan's 30-ton CRANEMOBILE moved into working position until the support was fastened, only six minutes had elapsed.

You'll find a CRANEMOBILE brings you the finest combination of advantages available for fast, safe lifts. Setting-up is exceptionally quick. Pin-connected boom sections permit rapid change of boom length. With hi-gantry and powerful independent boom hoist, boom and jib are raised from travel to working height without outside assistance. Extendible outriggers are quickly set.



In action, CRANEMOBILE load control is unmatched. With boom hoist independently power-operated, the crane operator raises or lowers boom or boom-and-load simultaneously with any other operation. A load-lowering device that's quickly engaged or disengaged handles the lowering of heavy loads smoothly and with precision. A heavy-duty, smooth-operating swing brake offers finest drift control; the operator swings the load into position . . . HOLDS that position exactly.

CRANEMOBILES are available in 25-, 30-, 35-, and 40-ton sizes . . . are mounted on specially designed BAY CITY-built 6 x 4 or 8 x 4 carriers. **For detailed information and the name of your nearest dealer, write today.**

BAY CITY SHOVELS, INC.
2611-A Center Avenue
BAY CITY, MICHIGAN

a subsidiary of Unit Crane & Shovel Corp.

For more facts, use Request Card at page 18 and circle No. 295

(Continued from preceding page)

Three Cat motor graders, a 14 and two 12's, maintained the haul roads, kept the fills in shape, and handled the finishing work on sections that were far enough along.

Another earthmoving spread, consisting of two Cat DW20 scrapers and two Euclid scrapers with a D9 push tractor, handled the roadway excavation and moved some of the borrow. This spread worked two shifts a day, six days a week. The loader spread worked just a single 9-hour shift, five days a week. Together, they moved 7,000 to 8,000 cubic yards of material per day.

Base and surfacing

The subbase, base, and surfacing materials were developed from gravel pits near the right-of-way. The minus 4-inch subbase was simply dozed to a belt-loader and hauled to the roadway by the Euclid bottom-dumps. The contract calls for 400,000 tons of this material.

The 2-inch and ¾-inch base materials and the hot-mix aggregates are being developed from the same pit through a crushing and screening plant. The contract calls for 200,000 tons of 2-inch stone, 30,000 tons of ¾-inch, and 69,000 tons of bituminous surfacing.

Servicing equipment

To provide the daily field lubrication and servicing of the equipment, Holland used a combination fuel and lube truck. The Chevrolet truck carried a 750-gallon fuel tank and also had four Alemite grease reels and pumps. Air for the lubrication equipment was provided by a compressor driven through the power takeoff by the truck engine.

The rigs in the field were fueled and serviced once a shift, usually during the lunch hour or between shifts. The haul units pulled into the job shop area one at a time for their daily servicing.

Personnel

F. H. "Mike" Holland, president of the Holland Construction Co., was on the job a good part of the time giving it his personal supervision. Glen Hash is superintendent of the project, Frank Stieka is assistant superintendent, and Lew Wilhelm is crusher superintendent. Jerry Sheehan is master mechanic.

For the Montana State Highway Commission, H. Craig Wilcox is resident engineer. On his staff are Loren D. Claridge and George Markovich. The district engineer is Oscar Ostenson, the state construction engineer is Lehman B. Fox, and the state highway engineer is Fred Quinnell, Jr. THE END

American Hoist elects

■ John W. Nichols has been elected to the board of directors of the American Hoist & Derrick Co., St. Paul, Minn. He recently retired as a senior vice president of the Continental Illinois National Bank & Trust Co. of Chicago.

Epoxy cuts positioning cost for bridge railings

Terry Contracting, Inc., which had the job of installing bridge railings on the Oneida Lake Bridge at Brewerton, N. Y., found that the use of Sika epoxy bonding compound for positioning anchor bolts for the railing posts resulted in a saving of 20 to 30 per cent in costs, compared to conventional methods.

By applying the compound to a small portion of the concrete beam and to the plates, the contractor was able to achieve positive positioning of the anchor bolts. This eliminated the necessity of positioning within the formwork prior to placing concrete, as well as time-consuming and expensive fittings of railing posts. In addition, the labor involved in tying anchorages directly to reinforcement was eliminated.

Write to the Sika Chemical Corp., Dept. C&E, 35 Gregory Ave., Passaic, N. J., or circle No. 92 on Request Card that is bound in at page 18 of this issue.

Workman at left applies Sika epoxy bonding compound to steel plates previously welded to anchor bolts. The contractor saved 20 to 30 per cent in costs with this operation.

M-C&S has new section

■ Merritt-Chapman & Scott Corp., New York, N. Y., has established a separate section as part of the company's Construction and Marine Department to develop and perform specialized marine construction projects in the New York metropolitan area.

William R. Moulton has been named to supervise the section.

Black & Decker names

■ The Black & Decker Mfg. Co., Towson, Md., has appointed Peter B. Wayman Miami district manager of the power-tool firm's industrial-automotive division. He succeeds Edward M. Stuart, who has retired. Since 1953, Wayman has been industrial-automotive sales representative in the New York district.

The following appointments and changes have been made in Black & Decker's industrial-automotive sales force:

F. W. Maddux, formerly sales representative in the Boston district, has been transferred to the New York district replacing Wayman; A. M. Walsh will succeed Maddux in the Boston district. C. N. DeJulio has been named sales representative in the New York district. B. F. Emery has been transferred from automotive sales representative in the Pittsburgh district to Master Power (air tool) sales representative in the same district; E. R. Locke, succeeds Emery in his former post. P. J. Girgen has been transferred from sales representative in the Memphis district to automotive sales representative in Detroit; E. R. Jex replaces Girgen in Memphis. J. B. Cook is now Master Power sales representative in the Baltimore district.

Dale C. Spohrer is the new sales representative of the B&D Consumer Products Division in the Los Angeles district. He will cover the Albuquerque-Phoenix-San Diego area, which was formerly handled by J. C. Jolley. Jolley is moving into the metropolitan Los Angeles area replacing Owen B. Cram, who has resigned.

Raymond names controller

■ Raymond International, Inc., New York, N. Y., foundation and heavy-construction firm, has elected J. Joseph Casey controller. Casey was previously assistant treasurer and manager of foreign accounting.

Bethlehem wire rope supplies muscle for deepening Buffalo's harbor

Wire rope mill depots and distributors from coast to coast stock Bethlehem rope

Rigged entirely with Bethlehem wire rope, this 12 cu yd clamshell dredge is deepening the channel in Buffalo Harbor to facilitate the navigation of ships using the St. Lawrence Seaway. Operated by Great Lakes Dredge & Dock Company, the dredge is shown hard at work off the Niagara Frontier Port Authority Terminal.

The harbor improvement program is being undertaken in four stages at a cost of about $10 million. The work is due for completion in 1961.

The dredge operators are getting dependable performance from their Bethlehem wire rope. Whatever your construction work may be, you too, can rely on this fine rope for the really tough jobs.

NEW CATALOG... "Bethlehem Wire Rope for Construction and Industrial Equipment" is a valuable reference of specific recommendations for the use of wire rope on bulldozers, shovels, derricks, cranes, and other equipment. Its 150 pages include data on grades, cores, and lays of wire rope, fittings, etc. Write today for your free copy. Ask for Catalog 493. Address your letter to Publications Dept., Bethlehem Steel Co., Bethlehem, Pa.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
Export Sales: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

For more facts, use Request Card at page 18 and circle No. 296

As the Dolomite Company knows so well . . . hauling profits depend on the

RIGHT TRUCK ON EVERY JOB

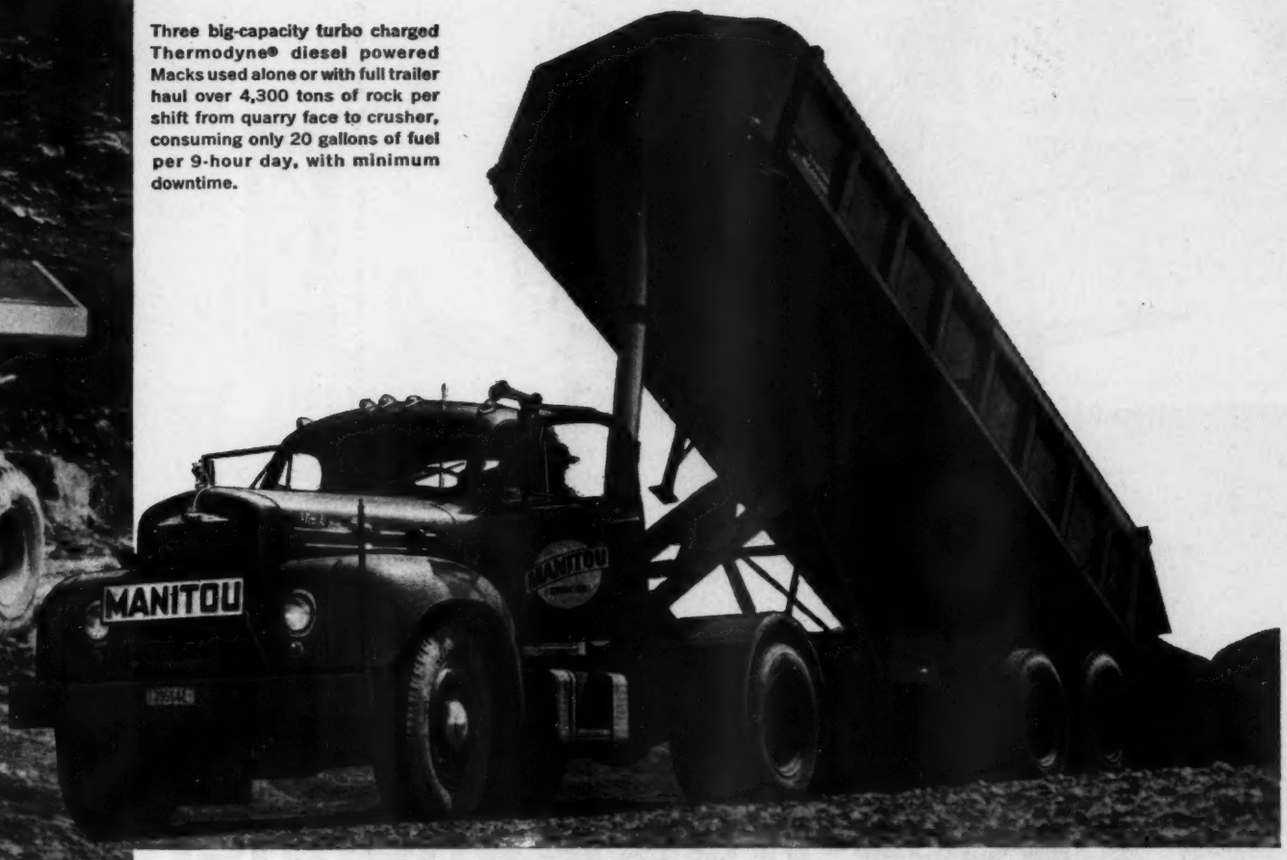
Dolomite Products Co., Inc., Rochester, N. Y., avoids profit-squeezing hauling costs because it has the know-how and experience to analyze its truck needs with an eye to keeping costs under strict control. Loads, terrain, schedules, climate, speeds, etc., all must be carefully weighed in selecting trucks for best all-round performance. For twenty years, Dolomite has been developing the use of Mack trucks in a wide variety of assignments . . . keeping its large and diversified operation rolling smoothly, profitably.

From the big-capacity, double-bottom side-dumpers that handle 130,000 lb. gross in the quarry operations to the fast-stepping mixers and B-30 Models that take care of jobs in the metropolitan area, each Mack in the fleet contributes to the over-all performance of the operation by giving maximum performance on the job it's designed to handle.

Macks deliver most profitable performance on every job because what goes into a Mack is **made by Mack.** Engines, clutches, transmissions, axles, drives and all other major components are **made by Mack** for Mack trucks alone . . . made to the highest standards of the industry to work together for maximum efficiency. This results in Balanced Design—Mack's way of making sure you always get unqualified satisfaction . . . of being sure that every Mack on your job

For more facts, use Request Card at page 18 and circle No. 297

Three big-capacity turbo charged Thermodyne® diesel powered Macks used alone or with full trailer haul over 4,300 tons of rock per shift from quarry face to crusher, consuming only 20 gallons of fuel per 9-hour day, with minimum downtime.



Crushed stone in large volume rolls to stockpile on Mack B-42T combinations. Manitou Construction Co., a division of Dolomite Products Co., Inc., also uses these vehicles for transport of bituminous concrete to paving jobs. Manitou also uses B-42 six-wheel dumpers to handle smaller hauling jobs.

Ready-mix concrete on its way from one of Dolomite's Rochester plants is handled by B-42 Model Macks. These mixers work in a metropolitan area where heavy traffic and stop-and-go driving can quickly wear down anything but a top-quality truck.

gives the best possible truck performance and maintains the longest prime of life.

Your Mack representative is qualified by knowledge and experience to help you determine the Mack model that will provide the most economical solution to your trucking problem. Mack Trucks, Inc., Plainfield, New Jersey. Mack Trucks of Canada, Ltd., Toronto, Ontario.

8942

MACK
FIRST NAME FOR
TRUCKS

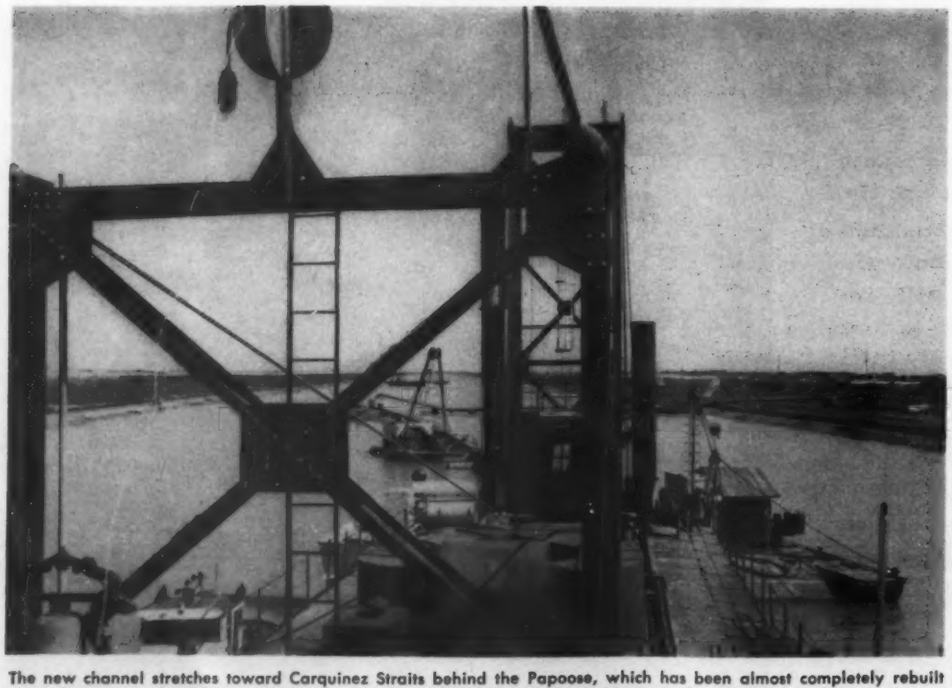
MACK
for over 8 straight years
NO. 1
by far in sales of diesel trucks

A deep-water channel that will make California's capital an important port by linking San Francisco Bay with Sacramento, 80 miles inland, is being dug by the 30-inch hydraulic dredge Papoose. The hull measures 210 × 50 feet with 8 feet of draft. The main dredge pump is driven by a 5,600-hp electric motor.

Deep-water channel creates inland port

Dredges move 80 million yards of dirt in series of contracts to build 60-mile ship channel

by RALPH MONSON, field editor



The new channel stretches toward Carquinez Straits behind the Papoose, which has been almost completely rebuilt since she was purchased from Bethlehem. The channel will be 200 feet wide at the bottom, 30 feet deep, and some 470 feet wide at the top. Dredged material forms wide dikes on both sides.

Sacramento, the capital city of California, lies more than 80 miles inland from San Francisco and 60 miles from the nearest deep water at Carquinez Straits. Yet it will soon have a deep-water port to accommodate ocean-going ships with 30 feet of draft.

Big draglines and hydraulic dredges are cutting a deep-water channel through some 42 miles of low-lying delta country and deepening the existing channels and rivers to connect with navigable water in San Francisco Bay. They have dredged out a triangular 70-acre harbor near Sacramento where the Sacramento-Yolo Port District and private industries are currently building extensive port facilities.

A barge canal is being dug by the Utah Construction & Mining Co. from the harbor to the nearby Sacramento River, so that river barge traffic will be able to join the deep-water traffic at this point. There is a unique lock in this canal and a bridge carries a railroad and a highway over it.

The 80-foot 80-ton ladder carries the 34-inch suction line and 8-foot-diameter basket-type cutter that turns at 25 rpm.

The Pinto, a converted LCM powered by two GM engines and mounting a Skagit winch and A-frame for handling materials, is in constant use, serving in every capacity from personnel carrier to tugboat.

Channel route

The ship channel begins in deep water in Carquinez Straits, follows the Sacramento River for a few miles, and then takes off through Cache Slough to the north. These existing waterways have been or will be deepened and straightened to accommodate the large ships.

From Cache Slough, the channel extends practically straight north along the east line of the Yolo Bypass. This is a wide flat channel, diked on both sides, which carries flood waters of the Sacramento River around the city of Sacramento and other built-up areas.

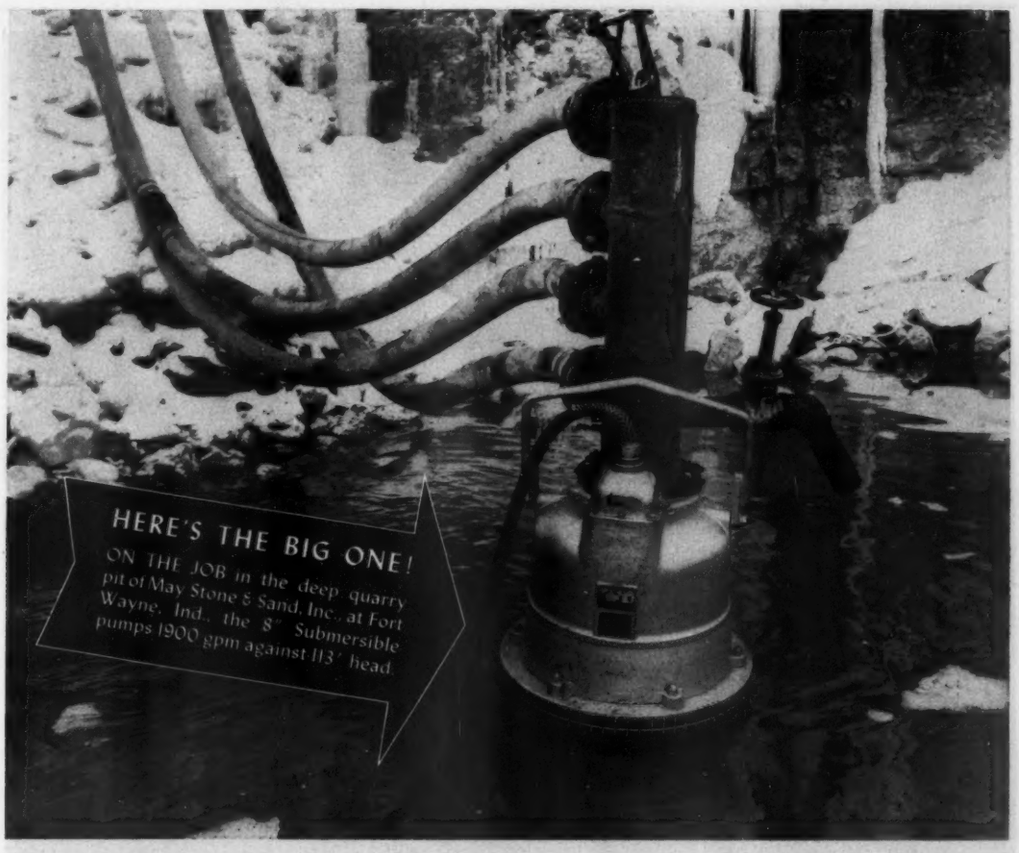
The deep-water ship channel is being dredged 200 feet wide at the bottom and 30 feet deep. Its top width is around 470 feet. Since the land along the entire route lies only a few feet above sea level, the maximum cut is around 43 feet.

The entire project, which is being done under a number of contracts, requires the excavation of some 80 million cubic yards of material at an estimated total cost of $45 million.

The dredging of the triangular harbor and 7 miles of the upper end of the channel was performed under a contract by a joint-venture firm composed of McCammon-Wunderlich Co. and Wunderlich Contracting Co. Under this contract, there was 24,500,000 cubic yards of excavation, of which 21,000,000 yards was excavated by the dredge San Diego owned by Pacific Dredging Co.

Under two separate current contracts with the Sacramento District of the U. S. Army Corps of Engineers, the Hydraulic Dredging Co., Ltd., of Oakland is excavating more than 40

(*Continued on next page*)


HERE'S THE BIG ONE!
ON THE JOB in the deep quarry pit of May Stone & Sand, Inc., at Fort Wayne, Ind., the 8" Submersible pumps 1900 gpm against 113' head.

Ready now—8" size Gorman-Rupp New Submersible Pumps

See how the discharge is manifolded to four 4" hoses, as this 8" Gorman-Rupp Submersible keeps the quarry going in the dead of winter.

It's an all-weather, all-purpose pump if there ever was one. It's automatic. It's electric. It can handle silty water and solids up to 1" diameter. Has special erosion-resistant materials at wearing points. Requires no attendance; can pump the supply down and run that way for long periods without damage. Leave it submerged indefinitely when continuous service is required—all internal hardware parts in contact with the water are stainless steel. And—the 8" size pumps 1000 gpm at 148' head, 1800 gpm at 118' head, and 2700 gpm at 40' head.

When it's a submersible pump job, here's a unit that pumps *more*—and so dependably! Less first cost. Less maintenance and repair costs. *Gorman-Rupp Submersibles are proving that on jobs from coast to coast.*

The family includes 3", 4", 6" and 8" pumps in motor power specifications to suit *your* requirements. How about calling in your Gorman-Rupp Distributor? Or—call us direct for any information you need.

The Gorman-Rupp Company

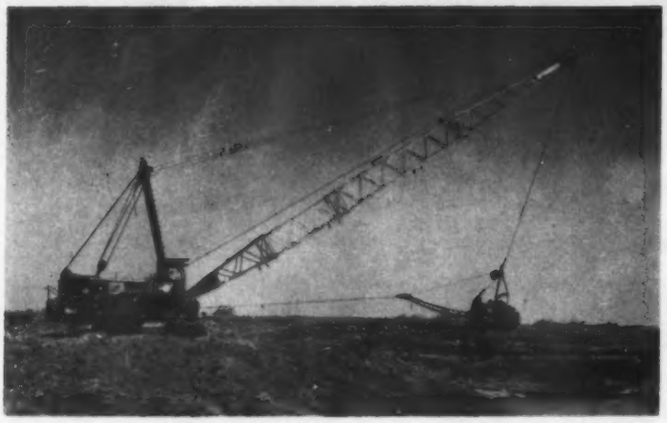
305 BOWMAN STREET MANSFIELD, OHIO

GORMAN-RUPP OF CANADA LTD., ST. THOMAS, ONT.

Available with 65 hp oil-filled motor, 1750 rpm, 3 phase, 60 cycle, 220 or 440 volt current. Weight of pump only, 775 lbs.

11-3210

For more facts, use Request Card at page 18 and circle No. 298



This Manitowoc 4500 dragline with 120-foot boom and Hendrix 7-yard bucket builds a retention dike ahead of the dredging operation. This is part of the dry-land portion of the job, being done under subcontract by Luhr Bros., Inc., Columbia, Ill. The sub is also clearing and doing some scraper work.

(Continued from preceding page)

million cubic yards of dirt to build 17.7 miles of the deep-water channel. The contracts total more than $10.3 million.

Use hydraulic dredge

The work horse of these contracts is the 30-inch hydraulic dredge Papoose—a veteran of many years of work on the Pacific coast—which has been practically completely rebuilt since being acquired by Hydraulic Dredging Co.

The dredge measures 210 × 50 feet and has 8 feet of draft. Her 80-foot 80-ton ladder carries the 34-inch suction line and an 8-foot-diameter basket cutter. The cutter is driven at 25 rpm through a reduction gear by a General Electric 1,500-hp motor.

The main pump, built by Hydraulic Dredging Co., is fully lined. Worn liners can be replaced in about eight hours to bring the pump back to new standards. This is important in working through some very abrasive sand and gravel deposits that cause very rapid wear of the liners.

A Westinghouse 5,600-hp electric motor powers the pump. A unique feature is the Kramer Control system designed and installed jointly by GE and Hydraulic Dredging. This system makes it possible to vary the speed of the big main motor without power loss, and without the use of grids or other devices to absorb the heat. The system is commonly used in rolling mills but has not been generally adapted for dredges.

The pump has Kingsbury main and thrust bearings.

The Pacific Gas & Electric Co. built a pole line parallel to the channel with taps at convenient intervals to serve the dredge. The power is brought aboard at 12,000 volts through a submarine cable and is reduced to the operating voltages in a bank of transformers on the dredge.

The multiple-drum swing and hoist gear is powered by a 150-hp General Electric dc motor. The controls in the lever room are a combination of air and manual. The brakes are hand-operated with air boosters; the frictions operate by air. Swing lines are attached to special T-anchors that were fabricated for this job. The 34-inch steel spuds are 78 feet long.

The 30-inch discharge line from the dredge to shore is fabricated of a special wear-resistant steel. The 80-foot joints are connected by flexible ball-and-socket joints and are carried on 22 × 6-foot-diameter steel tank pontoons.

Some 20,000 linear feet of 30-inch land line is strung out in the spoil areas on either side of the channel. Approximately 60 per cent of the material is pumped into the spoil area on the west bank, with the remainder going into a smaller area on the east bank. Since the dredge must alternate between the two areas, considerable lengths of land line are kept in each.

Caterpillar D7 and D8 tractors with Hyster winches and rear-mounted booms handle the land line. A "545" Koehring dragline is also used in the spoil areas to maintain and control the flow of water, and to help with the handling of the pipe.

Other floating equipment includes the 45-foot tug Clara powered by a 170-hp GM diesel engine, the twin-screw tug Pinto, an anchor barge, and other small craft. The Pinto is a converted LCM powered by two GM 6–71 diesel engines. It carries a light A-frame and a Skagit winch on the deck for handling light anchors and other lifting operations. The Pinto also handles the anchor

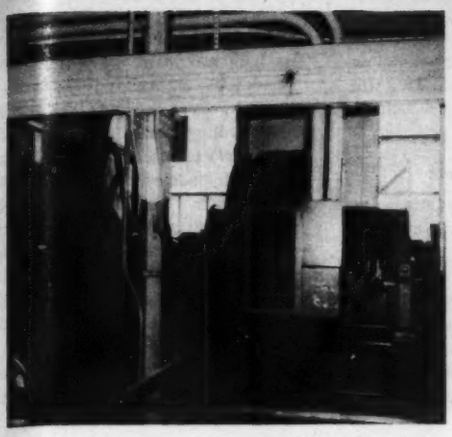
RED-STRAND!

Black . . . the most attractive color in bookkeeping. There's no magic formula for staying in the black, but careful consideration of the right type and make of wire rope can cut costs substantially—10%, 20% or more.

RED-STRAND users are accustomed to longer-than-expected wire rope service, because higher-than-catalog-rated quality is built into the rope. They know that Leschen distributors and field men make sure they have the best rope construction for the job at hand. They know, and you can too, that for wire rope and sling needs—specify RED-STRAND and stay in the black! For the name of your nearest Leschen distributor write: Leschen Wire Rope Division, H. K. Porter Company, Inc. 2727 Hamilton Avenue, St. Louis 12, Mo.

PORTER *LESCHEN WIRE ROPE DIVISION*
H. K. PORTER COMPANY, INC.

For more facts, use Request Card at page 18 and circle No. 299



Speed of the main motor is controlled without large power losses by a Kramer Control designed, built, and installed by GE and Hydraulic Dredging. The system, used in rolling mills, is seldom adapted for dredges.

A GM 6-71 diesel engine-generator provides standby power for emergency use when the dredge is not connected to a source of electric power. A pole line running alongside the channel serves the dredge.

A feature of the main pump is that it is completely lined. Relined sections are on hand ready for quick installation when necessary. The complete set of liners can be changed in about 8 hours.

barge for moving the heavy anchors, serves as personnel carrier, and is the general handyman of the setup.

Draglines build dikes

Before the hydraulic dredge can go to work, land crews clear the right-of-way and build the retention dikes. This portion of the work was sublet to Luhr Bros., Inc., Columbia, Ill. Luhr cleared the scattered groves of trees and brush with Cat D8 dozers.

Topsoil and other material unsuitable for dikes was stripped by scraper spreads and wasted in the spoil area. These spreads included five Cat DW21 scrapers and five D8 tractors with 463 scrapers together with D8 push tractors.

The big job of building the retention dikes for the spoil was handled by a pair of Manitowoc 4500 draglines fitted with 120-foot booms and using 6 and 7-yard Hendrix buckets. This portion of the channel parallels the east levee of the Yolo Bypass. The draglines built up retention dikes at the channel edge, leaving the area between the east dike and the old levee of the Yolo Bypass for one spoil bank.

Under a separate contract with the Corps of Engineers, Luhr Bros. had previously dug a new toe drain and built a dike with the excavated material. This formed the retention dike on the extreme west. An area was left between it and the dike on the west side of the channel for the west spoil area.

To start the work, the dredge came up from San Francisco Bay through part of the Sacramento River, several sloughs, and the Yolo Bypass toe drain. At the lower end of the alignment of the first contract, the dredge dug its way through the spoil area and into the channel. It then proceeded northerly, excavating about two-thirds of the channel as it went. On the return trip for the length of the job, it took out the remainder of the cut.

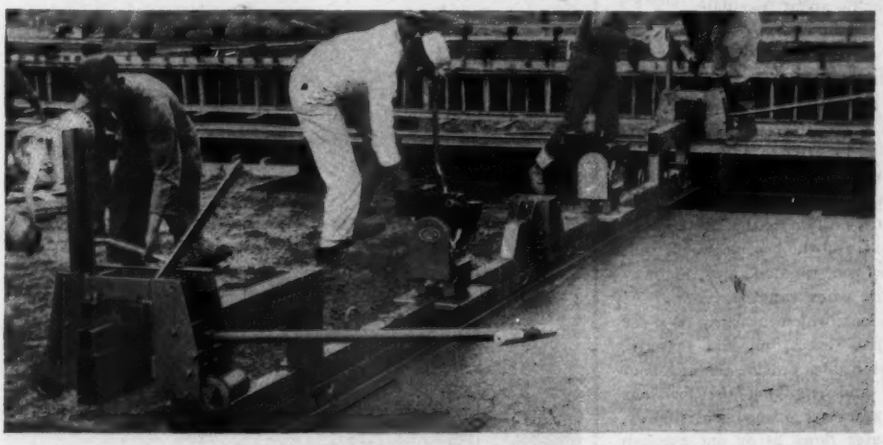
Hydraulic Dredging's second contract extended southerly from the first. By the time the dredge had returned to the south end of the original contract, the preliminary work on the second had progressed far enough so that the dredging could

(*Continued on next page*)

NEW ADJUSTABLE CROWN VIBRATING SCREED

STOW

• saves as much as 50¢ per cu. ft. of concrete • often cuts production time in half



ADJUSTABLE HINGE ASSEMBLY allows a center crown of up to 3 inches.

Crown adjustments of up to 3 inches can be built right into the beam of this new Stow SASG vibrating screed. Just loosen the bolts on the adjustable hinge assembly, jack up the center, and retighten the bolts around the pivot tube. Quick and easy as that! And look at these other time and cost-saving features:

ALL-STEEL DOUBLE-FLANGE BEAM, in 20 to 50 ft. lengths, strikes off true-to-grade surfaces, thoroughly vibrates the mix, gives effect of two passes at once.

TWO ADJUSTABLE 3-INCH FLANGES can be raised or lowered along the length of the beam to maintain correct crown or flatness of screeding surface.

TWO ADJUSTABLE AMPLITUDE 3 HP GAS ENGINE POWER PAKS, with throttle speed controls, deliver the exact amount of vibration needed—all along the beam.

ADJUSTABLE ROLLER ASSEMBLIES, with 9:1 ratio winches, can be moved along beam for span adjustments of up to 6 ft. Levers raise beam 1½" for additional passes.

RUBBER MOUNTINGS on power paks and roller assemblies isolate vibration, minimize wear and tear, reduce maintenance costs.

Send the coupon below for the new Stow Bulletin #610-9.

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Please send me Bulletin #610-9 on new Stow vibrating screeds.

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Capt. Nick Carlson of the Papoose checks the discharge line as the big dredge pumps material into a spoil area that is almost full.

(*Continued from preceding page*)

continue into the second contract.

The Papoose works around the clock six days a week, shutting down on Sunday for repairs. The crew on the dredge and the land lines totals about 50 men. This contract is scheduled for completion by July, 1963, and the other phases of the over-all project are being correlated so that the entire project can be opened to shipping about that date.

Lock and bridge

Under a previous $6.5 million contract, a joint venture of Rothschild, Raffin & Weirick, Inc.; Yuba Consolidated Industries, Inc.; and George Pollock Co., San Francisco—also known as Lock-Bridge Constructors—built a portion of the barge canal, the lock, and the bascule bridge that carries the railroad and highway over the barge canal.

The lock, which measures 86 × 688 feet, has several unusual features. Its sector gates provide the means of filling and emptying the lock. As these gates are opened just slightly, the water flows in or out through three passages between the gates and around them. This eliminates the usual filling and discharge channels.

While the lock will operate most of the time with the river some 12 feet higher than the ship channel, wide variations are possible. The head in this direction may increase to as much as 21 feet. There is also the possibility of a reverse head, when the river would be lower than the channel by an amount up to 3.6 feet.

The highway and railroad were relocated to bring the bridge site close to the location of the lock. This will make it possible for the lock tenders to operate the bridge as well.

Port development

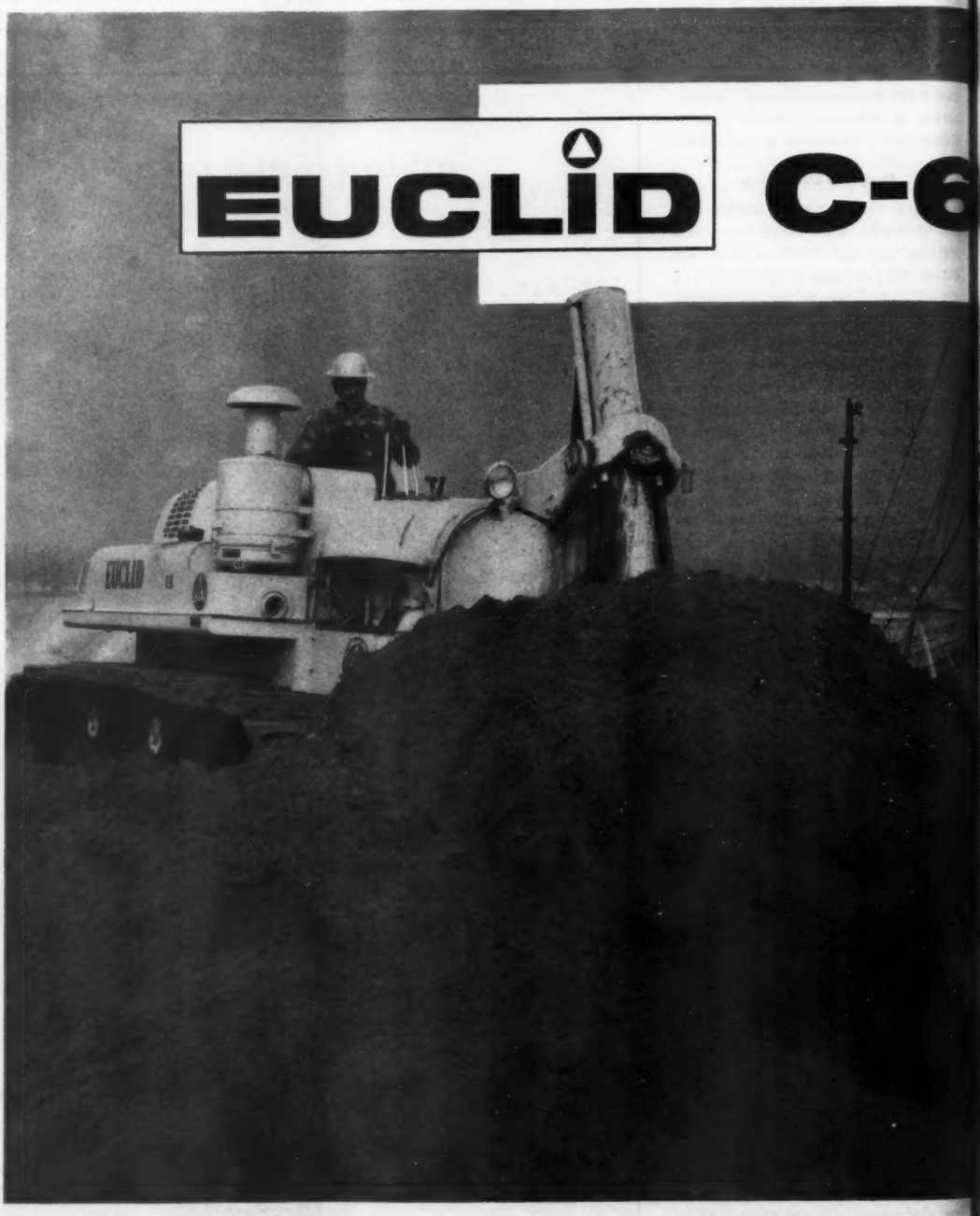
Several large grain-storage facilities have already been built by private industries and by the Sacramento-Yolo Port District at the harbor site. Last April, the voters of the district passed a bond issue for nearly $10 million for port improvements. These are currently being planned and put under construction so that they will be ready to serve the first ships, which will arrive in less than two years.

The port is expected to handle large volumes of rice and other grains that are the principal local agricultural products. Other potential commodities include general cargo, sugar, canned goods, lumbeor, and many types of foreign goods.

Personnel

For the Hydraulic Dredging Co., Ltd., Guy Walgraeve is serving as project manager and George Krusi as project engineer. Nick Carlson is captain of the dredge Papoose, and

Checking on operations from the deck of the Papoose are, left to right, Wilmer "Bill" Clark, resident engineer for the Sacramento District of the Corps, Capt. Carlson, and project manager Guy Walgraeve of Hydraulic Dredging.

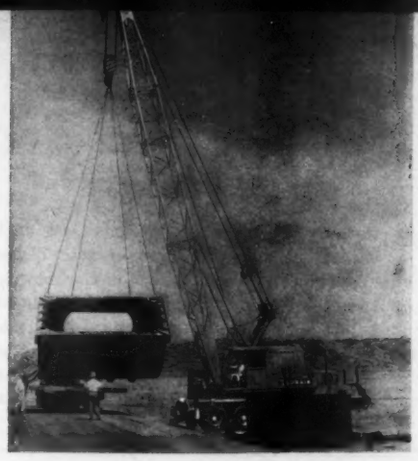


The Euclid C-6 Crawler is your best tractor buy for lowest operating costs... for work-ability... and for reliability in heavy service.

Roland Davies is chief engineer. Superintendent for Luhr Bros. on the land subcontract is Herman Hickman.

Supervisor of the over-all project for the Sacramento District of the Corps of Engineers is resident engineer Wilmer G. "Bill" Clark. The project engineer is Robert Douglas. Ralph Irving is project engineer for the lock and bridge. The district staff is headed by Col. H. N. Turner, district engineer, with Wesley South serving as area engineer for the northern area.

W. G. Stone is the port director, and Melvin Shore is the port engineer. THE END



UNLOADING A 48-TON FLAME DEFLECTOR at the Minuteman Missile Project at Edwards Air Force Base in California is this 75-ton Lorain Moto-Crane owned by the Aero-Space Division of the Boeing Airplane Co., Seattle, Wash. The rig performs many heavy lift jobs on this ICBM project.

C-6 with new Hydraulic Dozers

now even more work-ability!

With Torqmatic Drive and full-power shift, the "Euc" C-6 provides fast-as-a-fox maneuverability ...changes direction, from forward to reverse and back again with just a flick of the wrist. That kind of performance calls for fast blade action so the full work capacity of the C-6 can be utilized. Conventional tractor hydraulic systems didn't measure up ...in blade speed, low maintenance cost and freedom from excessive downtime resulting from wear and heat build-up.

Euclid and Gar Wood engineers combined their years of hydraulic experience with construction equipment and have developed a system that puts the C-6 even further ahead of other dozers in the same class. Incorporating a variable volume pump and single hydraulic cylinder, the C-6 with hydraulic blade provides important advantages in operation and maintenance... advantages that are further proof of the C-6 being the lowest cost tractor in the 200 h.p. class, and most versatile by far!

COMPARE THESE FEATURES OF A "EUC" C-6 HYDRAULIC DOZER WITH YOUR PRESENT EQUIPMENT!

- **Fast blade speed—up or down...** almost twice as fast as competitive units
- **More horsepower for tractive effort...** operator "meters" pump volume—no wasted engine power because no oil is pumped in "hold" position.
- **Better visibility...** blade corners not hidden by hydraulic cylinder or "A" frame
- **Greater lifting capacity...** improved mechanical advantage of single lever arm—blade mounting closer to center of front track roller
- **Less downtime...** only one cylinder—no high pressure on drive shaft seal—heat problem eliminated—pump works only when pressure is needed for raising or lowering blade

EUCLID

DIVISION OF GENERAL MOTORS, HUDSON, OHIO

Plants at Cleveland and Hudson, Ohio and Lanarkshire, Scotland

Oliver personnel news

■ Oliver Corp., construction-equipment manufacturer of Chicago, has made several new appointments in its branch sales organization.

William J. Cregan has been appointed manager of the firm's Minneapolis, Minn., branch. He has been western regional sales manager since November.

Henry A. Parker, formerly eastern regional sales manager, has been named manager of Oliver's South Bend, Ind., branch.

H. D. Hesch, former Minneapolis branch manager, will be in charge of Oliver sales at its Waukesha, Wis., office, where H. E. Anderson has been named to the new post of industrial sales supervisor.

H. P. Zandbergen has been made branch manager at Portland, Ore. He formerly served as South Bend branch manager.

The company has also appointed Earl J. Cutler territory manager in Louisiana, working out of the Memphis, Tenn., branch. Cutler joined Oliver in 1951.

B-L-M division is host to engineering students

■ The Construction Equipment Division of Baldwin-Lima-Hamilton Corp., Lima, Ohio, recently served as host to 21 highway engineering students representing 16 countries. These students are enrolled in postgraduate work at Ohio State University under the fellowship and bursary program of the International Road Federation.

IRF inaugurated this program in 1949, in cooperation with leading universities. Since then, 264 engineers from 71 countries have taken graduate studies.

Columbus-McKinnon opens branch in San Francisco

■ The Columbus-McKinnon Corp., Tonawanda, N. Y., has opened a manufacturing, sales, and service branch at 955 Indiana St., San Francisco, to provide delivery and service in the West Coast area to distributors and users of Chisholm-Moore Hoist Division hand and electric hoists and Columbus-McKinnon Chain Division welded link chains and attachments.

◀ For more facts, use Request Card at page 18 and circle No. 301

Safety is no one man's responsibility at Pulte-Strang. Two of the company officials who help guide the safety program are James P. Pulte, left, treasurer and general office manager, and C. W. Jeu de Vine, purchasing agent.

Management

Safety pay

Safety depends on a lot of little things. Picking up a scrap of lumber on a staircase. Filling an abandoned post hole on a construction site. Disconnecting temporary wiring at the end of the day. And many other small things that do not actually contribute directly toward getting the job done.

Pulte-Strang, Inc., a Detroit building contractor, finds that watching these small items is important. Stressing the details of safety has paid off for the firm in fewer accidents, lower insurance rates, and better-run jobs.

In recent years, the company has established an enviable safety record

Attention to small cleanup jobs makes over-all safety records high for Pulte-Strang, Inc., Detroit contractor. Rubble is cleared from a floor daily—or oftener—so that there is less chance of men tripping, falling, or slipping. It also allows crews to work more efficiently.

Immediately after the protective construction fence at the site of this church school addition is taken down, post holes are filled with sand to prevent children or other passers-by from stepping into them and possibly breaking an ankle and bringing suit.

B.F.Goodrich helps unlock Ohio River traffic jam

WITH TIRES, HOSE AND OTHER PRODUCTS, B.F.GOODRICH SPEEDS CONSTRUCTION OF NEW NAVIGATION SYSTEM

Time was when traffic was slowed by 4 separate locks in a 95-mile stretch of the Ohio River. But the Capt. Anthony Meldahl Locks and Dam will flood them. This project is part of a modern navigation system that will reduce 13 locks and dams to 3, and lockage time fr 19½ hours to 1½ hours.

Groves Ventures Company of Minneapolis, Minneso a joint venture sponsored by S. J. Groves & Sons Co. is on the job with an army of B.F.Goodrich tires a always-available BFG tire service. Rock Service tires, f example, haul 33-ton loads of concrete from batch plant to lock forms over rock-strewn roads. No proble for these BFG giants, though. They're available in

...ig dividends

Arthur T. Pulte, executive vice president of the firm, visits with Frank Williams, super. On this project, Williams is responsible for seeing that safe working procedures are followed.

Last year, the firm received an award for over 50,000 man-hours without any lost-time accidents. Its 1959 record of no lost-time accidents in 148,711 man-hours won a National Associated General Contractors' safety award. For group C of the building construction division, Pulte-Strang had the best safety record in the country.

This is not a large company. The 8-year-old organization handles between $2 million and $4 million worth of work each year. It keeps four men in the office and from six to nine superintendents in the field. It builds schools, churches, hospitals, plants, and other industrial and commercial buildings. Recently, the firm has become developer and builder of a residential subdivision in Florida.

The safety program has meant not only an award plaque on the office wall but also dollars in the firm's account. During the record year of 1959, it got back 40 per cent of the premium on its retrospective insurance plan.

Safety at office level

At Pulte-Strang, safety is everybody's job. From the president down to the man with the shovel, everyone is conscious of safe working habits. But no one person is responsible for the safety program; it's a mutual effort.

At the office level, Bill Jeu de Vine, purchasing agent, and Jim Pulte, treasurer, share some of the responsibilities of the program. They make sure that recent articles and pamphlets on safety get into the hands of the field superintendents. Every month or two, they call a safety meeting with all the superintendents coming into the home office. Specific problems concerning accident prevention are discussed. Joe Pulte, the president, may take the opportunity to impress on the superintendents the importance of good housekeeping. He is a firm believer in this; he once fired a superintendent for failure to run a clean job.

Super controls job safety

Although the company's safety program is initiated at the office level, it is in the field that the program is put to test. Safe working conditions on the job lie squarely on the shoulders of the superintendent. He must be aware of all the small things that make up job safety and see that they are done. He must train his foremen to be safety conscious. He must see that the subcontractors are following safe working procedures.

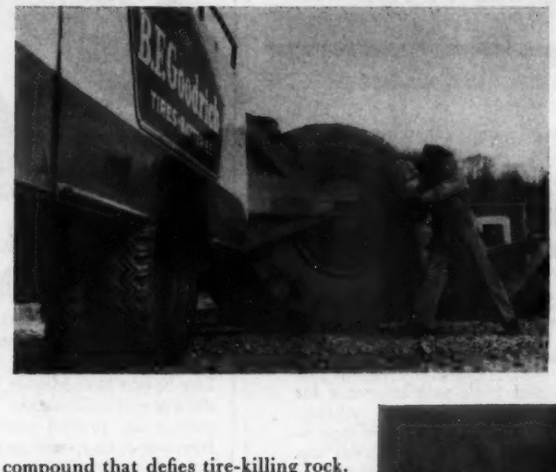
Keep job clean

All of Pulte-Strang's superintendents are concerned about running a safe job. Frank Williams, a superintendent who has been with the company for seven years, believes it's particularly important to run a clean job. "Good housekeeping is good sense," says Frank. "On a neat job, your men aren't climbing over a clutter of junk to get at their work. They're not tripping and falling down stairways. They're not stepping on nails sticking out of old lumber."

It takes a little extra effort to run a clean job. Frank, setting an example for his men, often picks up scraps of paper or lumber whenever he walks out of the building. "Never leave a building with your hands empty," he tells his men.

Frank sees that floors and stairways are kept free of rubble and small

33 TONS OF CONCRETE leave batch plant (photo at left) bound for lock pouring area (below). Locks will be 110′ x 1200′, will require over 670-thousand cubic yards of concrete, will cost over $25-million. B.F.Goodrich Rock Service and Rock Rib tires haul concrete 16 hours a day, 6 days a week down 2 long grades into the cofferdam excavation. Roads are covered with crushed rock and gravel, and often with 6″ of water. Yet BFG tires give exceptional service, Groves Ventures reports.



B.F.GOODRICH ON-THE-JOB TIRE SERVICE keeps Groves Ventures equipment rolling on lock project near Chilo, Ohio—keeps tire costs at a minimum. The BFG Servicemobile and repair shop are manned by tire experts, whose workmanship prompts Project Manager W. J. Green to write, "B.F.Goodrich service and repair facilities have done an excellent job of covering our needs."

NO STING IN THIS STEAM HOSE, used to cure concrete at Capt. Anthony Meldahl locks. It's Burstproof hose, made of BFG-developed heat-resistant rubber with layers of braided wire reinforcement. It can't explode. Supplying Groves Ventures with hose, belting and protective clothing—as well as tires—is all part of the BFG Unified Contractor Program. Contractors benefit from lower costs and better rubber products' service with this new BFG program.

...t Protected compound that defies tire-killing rock. ...B.F.Goodrich Flex-Rite Nylon cord construction with...nds double the impact of ordinary materials, resists heat ...swouts and flex breaks. Result: more retreadable tires. ...o wonder Groves Ventures specifies BFG tires.

You'll find B.F.Goodrich hose, protective clothing and ...her products at work here—all part of the BFG Unified ...ntractor Program that helps contractors cut costs and ...t better service from rubber products. Call your nearby ...F.Goodrich Smileage dealer (listed under Tires in the ...llow Pages). He has the know-how to help make your ...xt contract more profitable. *The B.F.Goodrich Company, ...ron 18, Ohio.*

Specify **B.F.Goodrich Tubeless or tube-type tires when ordering new equipment**

B.F.Goodrich

For more facts, use Request Card at page 18 and circle No. 302

(Continued from preceding page)

trash. Weekly, and more often if necessary, a man goes through the building with a brush, bucket, and shovel. The rubbish is dumped in a pile outside the building. Every week or two, the trash is loaded on a truck and hauled away.

Building materials necessary to finish a room are kept stored neatly in a pile at the center. This gives men an opportunity to work around the walls of the room. Stored materials are never allowed to block corridors.

In concrete work, used forms and shores are stripped of their nails and stacked neatly in piles. When the forms are no longer needed on the job, they are sent to a central storage yard.

Joseph Harman perches on the Master heaters he keeps in good operating condition at the North End Equipment Co., a wholly owned subsidiary of Pulte-Strang. With the heaters in top shape, there is less likelihood of their exploding or giving off dangerous gases.

Good safety practices

Aside from good housekeeping, there are innumerable little things that are done on a job to keep it safe.

Men wear goggles when chipping concrete, or whenever flying particles endanger their eyes.

Ready for use in the construction shack is a well stocked first-aid kit.

For even minor injuries, men are taken to a clinic for observation and treatment. The practice protects the workman from infection and Pulte-Strang from unjustified insurance claims.

As a fire-preventive measure, temporary wiring is disconnected at the end of the working day.

Water is always nearby for putting out fires. Generally, a bucket of water is kept in each room where men are working.

Gasoline and other highly flammable materials are stored outside of the building.

To keep from losing good men, abandoned shafts or holes on the site are filled up.

Men are not permitted in the area below forming when concrete is being placed for a floor. They also must stay out from under the concrete bucket.

Men are required to do their own jobs with their own tools. When a laborer handles a power tool, he's inviting an accident as well as trouble with the union.

From a safety standpoint, tubular scaffolding is preferred by the company. The scaffolding is kept in good repair and is not overloaded so that it is completely safe.

Hard hats are worn when there's a possibility of something falling on a man's head. The superintendent decides when and where the hats should be worn.

Job safety meetings are called when particular problems arise. Generally, the superintendent or foremen bring poor safety practices to the attention of men as they work.

Condition equipment

Keeping the equipment in good working order is an important part of job safety. Dull power saws can kick back and cut a man. Worn cables

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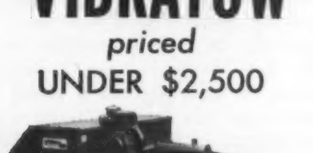
America's Leading Rollers

VIBRATOW

priced

UNDER $2,500



VIBRATORY TOW TYPE COMPACTION ROLLER WITH

- Controlled vertical vibration directly above drum.
- Fewer parts—easier to reach.
- No mechanism within drum.
- All rubber and spring suspension for long life.
- No daily lubrication required.

Vibratow will produce high densities under suitable soil conditions at extremely low cost per unit investment. Eccentric vibrator shafts rotate at 1450 V.P.M.—big 60" wide roller exerts 5000 pounds of vibratory thrust for maximum compaction.

At this low price, Vibratow could be the exact piece of equipment for *your* compaction jobs—less than $7500 buys a 3-gang unit that rolls a path 12 to 14 feet wide. You get top selling Rolcor Roller engineering and quality—keeps maintenance costs unusually low. See your Rosco dealer or write direct for complete details and specifications.

Vibratow 3-gang unit rolls 12 to 14 foot path in one pass.

ROSCO MANUFACTURING CO.
ROLCOR DIVISION
Rosco MINNEAPOLIS
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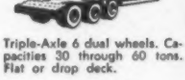
A COMPLETE LINE . . TO FIT EVERY NEED . . BETTER!

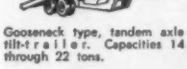
You can depend upon TRANSPORT TRAILERS for Extra Performance . . . on any job!

MODEL "T-1"



40 ton capacity triple-axle trailer weighing just 11,800 lbs. Lightweight trailers ranging capacities of 30 tons and up are now available in high strength "T-1" steel.

MODEL GTX



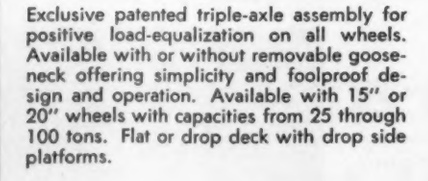
Triple-Axle 6 dual wheels. Capacities 30 through 60 tons. Flat or drop deck.

MODEL GXTT

Gooseneck type, tandem axle tilt-trailer. Capacities 14 through 22 tons.

MODEL XTT

Tandem axle tilt-trailer (tow type), capacities 13 through 20 tons.



TRIPLE-AXLE MODEL GTRY

Exclusive patented triple-axle assembly for positive load-equalization on all wheels. Available with or without removable gooseneck offering simplicity and foolproof design and operation. Available with 15" or 20" wheels with capacities from 25 through 100 tons. Flat or drop deck with drop side platforms.

TRANSPORT TRAILERS is the profit choice of contractors and movers the world over and is the *complete* solution to *your* transportation problem.

"TRANSPORTATION ENGINEERING A SPECIALTY"

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EXPORT OFFICE:
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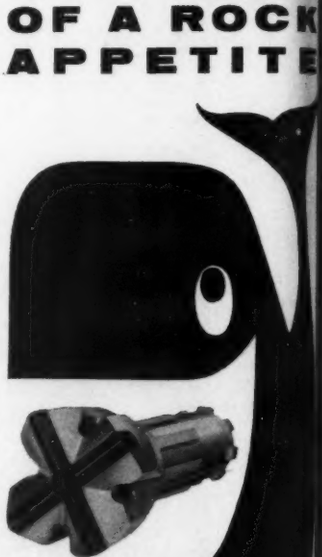
A WHALE OF A ROCK APPETITE



BRUNNER & LAY SPLINE ROK-MASTER

Wherever widely spaced, large diameter blast holes can be used these 4½", 5", 6", 6½"; 7" and 9" Brunner & Lay Spline Rok-Master bits will produce sensational results. They simply extend the proved economies of Brunner & Lay carbide bits to large hole sizes. They give the Brunner & Lay line complete coverage of all drilling tools from chuck to muck. Put them against those you now use—you'll wish you had sooner.

Brunner & Lay, Inc., 9300 W. King St., Franklin Park, Ill. Plants & conversion shops from coast to coast

Brunner & Lay

CARBIDE ROK-BITS • DRILL RODS • TRASET STEEL COUPLINGS • ADAPTERS • EXTENSION STEEL • STRIKING BARS • ETC.

For more facts, circle No. 305

can cause a load to drop. Poorly operating heaters can give off poisonous fumes. Smooth-running equipment means fewer accidents.

In the field, the superintendents of Pulte-Strang generally have one man check over the equipment once a week. Power tools are lubricated. Oil is changed in compressors and cranes. Cables are checked for wear. Even a wheelbarrow gets a grease job.

When a piece of equipment is no longer needed on a job, it is sent to a shop and central storage area. This setup operates as the North End Equipment Co.—a wholly owned subsidiary of Pulte-Strang. The company owns all the equipment and rents items to the individual jobs.

In the 40 × 120-foot shop building, small equipment is put in good working order and stored out of the weather. Tubular scaffolding is repaired, painted, and stored outside. Scaffold planks, shores, and form lumber are stacked in neat piles in the yard. Unusable or unsafe material is discarded.

Equipment stays in good working order because it periodically comes back from jobs to the maintenance shop. The well lighted shop is also used as an area for prefabricating forms and other elements to be sent to the job.

Safety is the byword for this firm. Pulte-Strang preaches it and practices it—beginning with the small clutter that can mushroom out of control into ever-present hazards.

THE END

Johns-Manville releases film on sewer systems

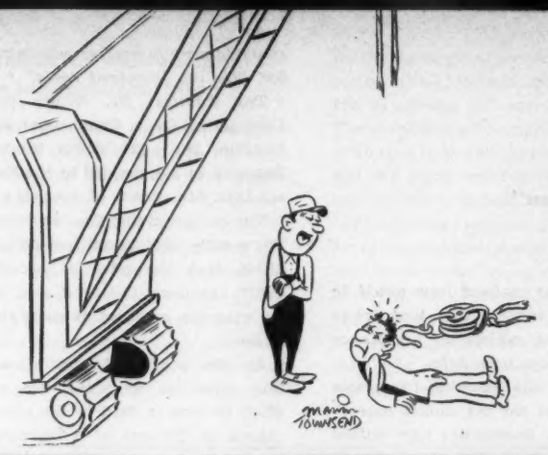
■ "Pipelines to Health," a 23-minute full-color 16-mm motion picture released by Johns-Manville, presents the basic facts concerning community sewer facilities.

Live and animated sequences detail the advantages of asbestos-cement sewer pipe during the planning, installation, operation, and maintenance of sewer collection systems. It also stresses highlights in the manufacture of Transite pipe, details of types of fittings, and methods of jointing and testing.

Arrangements to show the film can be made through local J-M Pipe Division representatives, or with Johns-Manville Pipe Division, 22 E. 40th St., New York 16, N. Y.

Engineering firm cited by Army Engineers

■ The Ralph M. Parsons Co., engineering and construction firm of Los Angeles, recently received a certificate of appreciation from the Special Defense Projects Branch, U. S. Army Engineer District, Mobile, Ala. The award was made for outstanding service rendered to the U. S. Army while performing architect-engineering design work under contract with the Corps of Engineers for facilities for the Army Ballistic Missile Agency and the Army Rocket and Guided Missile Agency, particularly in support of the Nike-Zeus anti-missile missile program.



"That old cable don't need replacing—you said. It's good for another ten years—you said . . ."

IN ROCKY SOIL—IN TIGHT QUARTERS, TOO—NOTHING DIGS TRENCH LIKE A CLEVELAND "J"

DEPENDABLE TRENCH PRODUCTION in conditions like these takes a trencher that's built for tough digging, yet no bigger than it has to be, and able to dig up close to, and sneak by, trees, poles, fences and other side-obstructions. That's an exact description in every respect of a Cleveland J Trencher. On tough jobs or easy, in all soils and job conditions, Cleveland J's *dig more trench . . . in more places . . . at less cost . . .* because of Cleveland features like these:

- **4 digging-wheel speeds, over 30 positive crawler digging speeds—the *right* combination of power and speed for every soil and condition.**
- **Ample power—big 330-plus-cubic-inch engine.**
- ***The world's finest trencher crawlers*—1,000-hour lubricated, 100% anti-friction-bearing-mounted track with dual drive and support.**
- **Big 16" x 3" hydraulic steering brakes.**
- **V-conveyor with automatic side-to-side shifting—no slow-down to sneak by side obstructions.**
- **Conveyor reversal and speeds up to 1,000 FPM with pulley-enclosed, dual hydraulic drive.**
- **Positive, fast, full-range boom hoist—keeps accurate grade, speeds set-in time around underground obstructions.**
- **Full job-visibility for the operator.**
- **100% control of every operation at the operator's seat.**

There's a Cleveland J for every type and size of trench, from 13 to 30 inches wide, down to 7 feet deep. Check them now with your distributor.

CLEVELAND TRENCHER®

THE CLEVELAND TRENCHER CO., 20100 ST. CLAIR AVE., CLEVELAND 17, OHIO

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Avoid legal pitfalls

Legal effect of "quotation"

THE PROBLEM: *A city planned overhaul of airport facilities and invited bids. The defendant learned that the plaintiff planned to bid, as general contractor, on building construction and sent him a filled-out printed form headed "Quotation," stating that it proposed to furnish, as subcontractor on the job, specified concrete work for $1,200. The form stated that quotations on the defendant's regular contract form would be mailed on request, and that prices quoted were subject to acceptance within 10 days from date.*

Plaintiff was awarded the prime contract but did not signify acceptance of the defendant's offer within the 10-day limit. Defendant refused to enter into a subcontract, and plaintiff sued for damages resulting from the increased cost of letting the concrete work to another subcontractor. Was the defendant liable?

THE ANSWER: No. (Sharp Bros. Contracting Co. v. Commercial Restoration, Inc., 334 South Western Reporter 2d 248, decided by the Kansas City, Mo., Court of Appeals.)

The court said that the "quotation" was a mere offer to contract on condition that the offer be accepted within ten days. The court said that the case was governed by these rules of law:

An offer ends at the expiration of time given for its acceptance, and when no time is fixed in the offer it expires at the end of a reasonable time.

A general contractor may, if he chooses, specify conditions under which he will receive, accept, and consider bids from interested subcontractors, and likewise an offerer may submit a bid or quotation with a definite time limit for acceptance.

Underground cable is severed by contractor

THE PROBLEM: *A telephone company sued a street-paving contractor for severing its cable in excavating operations. Was the contractor liable?*

THE ANSWER: Yes. (Mountain States Telephone & Telegraph Co. v. Vowell Construction Co., 341 South Western Reporter, 2d, 148, decided by the Texas Supreme Court.)

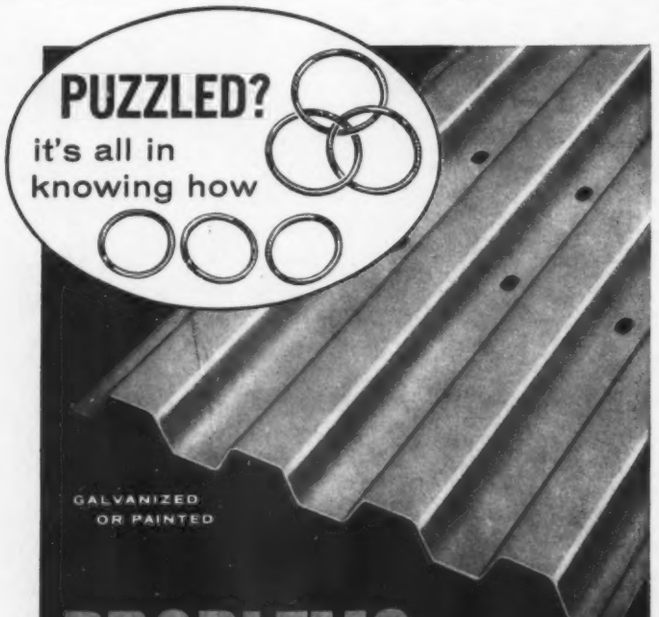
Reversing a contrary decision by a Texas Court of Civil Appeals (335 South Western Reporter, 2d, 804), the Supreme Court decided that because the telephone cable was lawfully in place beneath the surface of ground under franchise from the city, and the road scraper that severed telephone cable was deliberately and intentionally used by the street-paving contractor in making a cut to designated subgrade, the severing of the cable violated a property right that gave rise to damages for trespass regardless of negligence. Since the particular classification to be given a particular act is not of controlling effect, the important point is that a property right was violated.

The Supreme Court said: "There is some argument that the telephone cable in the particular locality should have been placed at a greater depth below the surface of the ground. The cable or the covering conduit at the point of severance was evidently buried around 27 inches below the surface. There was some testimony that the telephone company generally placed its cables 30 inches below ground level. However, there is no evidence that the franchise ordinance specified any particular depth, or that the city or anyone acting for it had requested that the telephone company check its lines and if necessary remove and re-lay them so that they would be below a specified depth before paving operations were undertaken. The owner of conduit lines lawfully in a street or alley can hardly be expected to know that their existing location is unsatisfactory in view of contemplated street surfacing or other improvements unless notified to that effect."

Owner's liability to third parties

THE PROBLEM: *In general, what is the liability, if any, of an owner to third parties who have been damaged by negligence of a contractor in performing work for the owner? A decision covers that question in general terms, although the case specifically dealt with a public authority's liability.*

Claim was filed against the state of New York by an owner of land adjacent to reconstruction of a highway. His land had been damaged by a diversion of surface water while the work was in its final stages of completion, resulting in dirt and filth being washed upon the land in the course of heavy rainfall. The damage was



PROBLEMS: practical solution for bridges, overpasses, pile backing—requiring greatest economy, durability and engineered strength.

ANSWERED BY: USF BRIDGE FLOORING

Send for details to:
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Highway Guard Rail
Bridge Flooring
Steel Forms for Concrete Bridge Decks
Corrugated Metal Pipe
Window Wells
Metal Doors & Frames
Metal Buildings

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CM HOISTS

...choice of the wise buyer who compares

CM HOISTS AND PULLERS are ruggedly constructed to give you years of trouble-free service. Yet they are unusually light...easy to handle because they are constructed of the strongest alloys of steel and aluminum. Equipped with famous CM-Alloy flexible, welded alloy steel load chain.

CM CYCLONE
- Capacities from ½ to 10 ton.
- 1-ton model weighs only 36 pounds.
- 96% efficient—easy to operate.
- Lifetime lubricated.

CM PULLER
- Capacities ¾, 1½, 3 and 6 ton.
- ¾-ton model weighs only 14 lbs.
- Compact: stores in tool box.
- Lifts or pulls at any angle.
- Lifetime lubricated.

Write for catalog and name of your nearest CM dealer.

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Columbus McKinnon Corporation
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For more facts, circle No. 308

largely due to neglect of the highway contractor to cover with concrete gutters in which pipes had been laid and covered only by gravel and other material. The state inspector had requested that the gutters as so filled be covered by concrete, as required by the contract. Was the state liable?

THE ANSWER: No. (Strickland v. State of New York, 177 N. Y. Supp. 2d 983, decided by the New York Court of Claims.)

The court ruled that to establish liability, the claimant had to, but did not, prove that the state was negligent. An employer is not responsible for wrongful acts of an independent contractor, except where the employer has furnished defective plans, failed to entrust the work to a competent contractor, or has ratified the contractor's neglect, and except where the work inherently endangers third parties. Here, there was no proof that brought the case within any of these exceptions. Even if the contracting company was negligent, the state was not negligent in entrusting the work to it.

Binding effect of bidding mistake

THE PROBLEM: *On the facts involved, was a school-building contractor entitled to withdraw a low bid of $89,994 where the computation inadvertently omitted sub-bids received for plumbing totaling $6,500 and $9,285?*

THE ANSWER: Yes. (Elmore Union Elementary School District Riverside County v. Kastorff, 6 California Reporter, 1; vacating a contrary decision by the California District Court of Appeal, 346 Pacific Reporter, 2d 850.)

The contractor testified that in preparing his bid he employed work sheets upon which he entered bids of various subcontractors and mistakenly failed to include an allowance for plumbing work, but that next day he discovered his error and immediately informed the school district and two days later wrote a letter to the school board explaining his error and requesting permission to withdraw his bid. The Supreme Court declared evidence was insufficient to support findings that it could not be ascertained for what purpose either bid sheets or the total column on the contractor's work sheet was used in arriving at the total bid and that the school district did not know at any time that the bid was intended to be other than as submitted.

The fact that the bidder may have had ample time and opportunity, after receiving the last subcontractor's bid, to complete and check his final bid before submitting it, did not preclude his being relieved from inadvertent clerical error in computing his bid. The fact that he informed the board—in response to inquiry and after checking with his clerical assistant—that his bid was correct also did not preclude the contractor from being released from an unfair, inequitable, and unintended bargain.

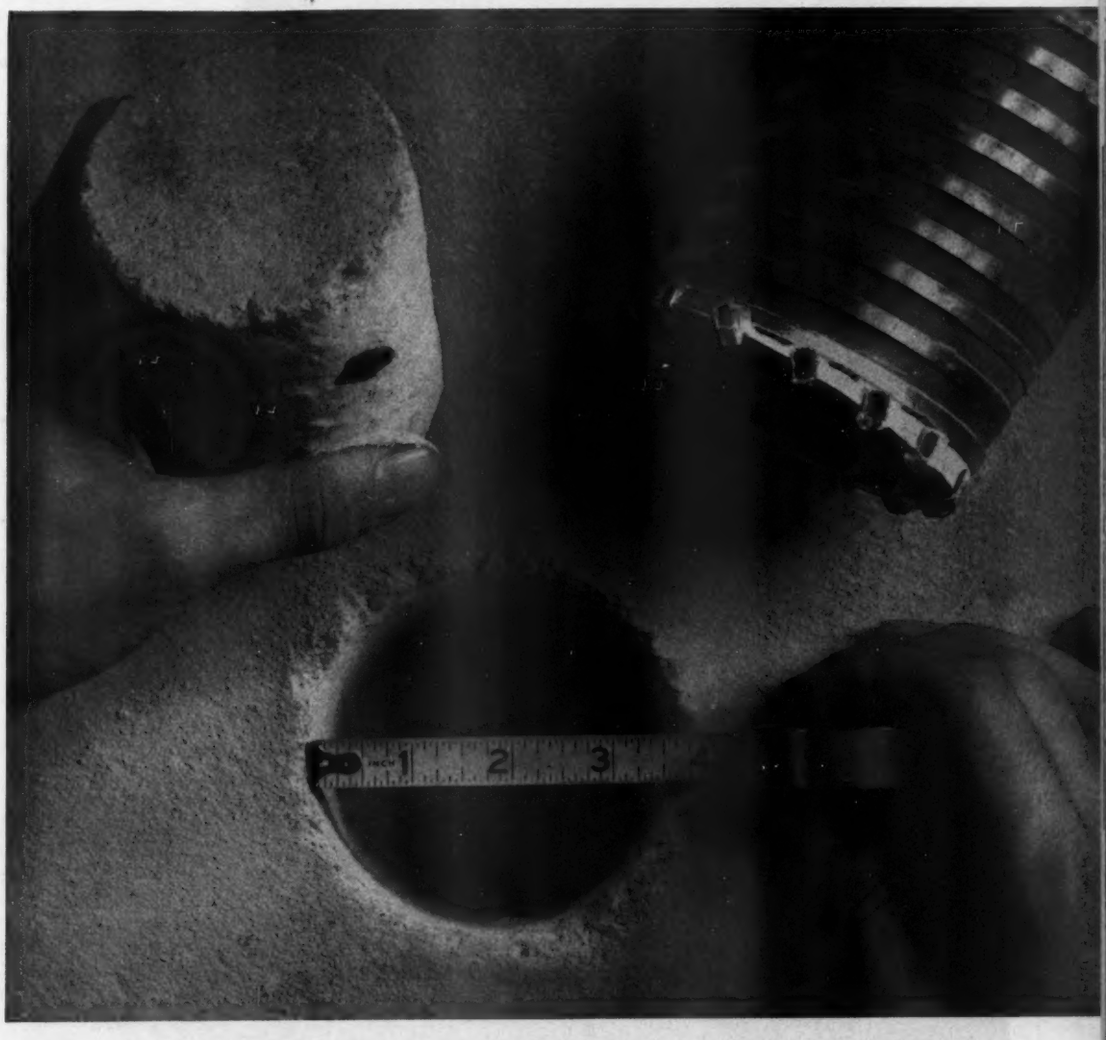
Contractor waived claim for misrepresentation

THE PROBLEM: *Claimant successfully bid on a contract with the state of New York to lay and anchor sludge pipe about 6,000 feet long on the bottom of Jamaica Bay. Its claim was for alleged extra work, materials, and expense caused by variance between the actual contour of the bottom of the bay and the contour as shown in the state's specifications, upon which the contract was based. The claimant contended that the state misrepresented the depth of the water at various points and the contour of the bottom in offering the contract for bids. The soundings were made by the state some time before the contract was let, and the plans referred to "approximate profile of bottom."*

The contract required the contractor to take its own soundings and submit for approval scaled drawings of the alignment of the pipe line and the contours of the bottom of the bay before entering upon the work. This was done, and claimant wrote a letter to the state, claiming that the bottom was not as indicated in the plans and estimating the extra cost to be $3,500, which it agreed to waive if permitted to use galvanized steel instead of

Edited by A. L. H. STREET
Attorney-at-Law

These brief extracts of court decisions may aid you. Local ordinances or state laws may alter conditions in your community. If in doubt consult your own attorney.



Now! Skil Roto-Hammers drill 3½" holes in reinforced concrete

using new percussion carbide tipped Skil Core Bits!

There are plenty of good reasons why the Skil Roto-Hammer is sure to be the world's largest selling hammer again in 1961! But one of the foremost is Skil's new core bits.

These hollow core, percussion type carbide bits increase the range of the Model 726 Roto-Hammer from 1⅛" up to 1½" and the Model 736 from 2" up to a full 3½"!

What's more, they drill right through stubborn steel reinforcing rods—an impossibility with solid carbide bits or star drills.

This means that the hammer that already drills masonry holes at the *lowest cost per hole* and with *lowest hammer maintenance*, has tremendous added versatility.

Ask your Skil distributor for a demonstration soon. Look under "Tools-Electric" in the Yellow Pages. Or write: Skil Corporation, Dept. 107-G, 5033 Elston Avenue, Chicago 30, Illinois.

Skil Roto-Hammers combine power rotation with powerful hammering to drill holes in masonry (¼" to 3½") 5 to 6 times faster than ordinary electric hammers! Lowest maintenance—no springs to break.

SKIL . . . and SKILSAW POWER TOOLS

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avoid legal pitfalls

(Continued from preceding page)

stainless steel on certain parts of the project. The state did not reply to this letter. With full knowledge of all the facts, claimant went ahead with the performance of the contract.

The instructions to bidders and the proposal requirements contained the usual clause to the effect that the bidder must determine for himself the character, quality, and quantity of work and materials to be required and the difficulties to be encountered. Did the New York Court of Claims correctly deny the claim?

THE ANSWER: Yes. (A. G. Concrete Breakers, Inc. v. State of New York, 194 Supp. 2d 743, decided by the New York Supreme Court, Appellate Division, Third Department.)

The Supreme Court said that the evidence supported findings by the Court of Claims that the state did not act fraudulently and that claimant had not been misled; and that, furthermore, any claim was waived by starting and completing the work with full knowledge of the underwater conditions.

Quarry operator sued for blasting damages

THE PROBLEM: *A highway contractor operated a quarry about one-third mile from plaintiff's mink ranch. Plaintiff sued the contractor for damages, claiming that blasting and other operations of the quarry so frightened the mink as to cause kittens to be stillborn or stunted, rendered adult mink useless for breeding, and reduced the quality of pelts. Was the suit properly dismissed by the trial judge?*

THE ANSWER: Yes. (Gronn v. Rogers Construction Co., 350 Pac. 2d 1086, decided by the Oregon Supreme Court.)

The court noted that plaintiff's claim was partly based upon the peculiar susceptibility of mink to the noises produced at the quarry. The court also reasoned:

Both plaintiff and defendant were engaged in legitimate uses of property. According to accepted standards, defendant's conduct in constructing a public highway would be deemed of greater value than plaintiff's mink farm. But this would not entitle defendant to carry on its project without regard to plaintiff's business.

Because the mink farmer requested delay in setting off explosives until after April 1, and the road builder complied and the farmer made no request for further delay upon being informed that charge would be set off, the road builder could not be charged with either negligent or intentional misconduct in so proceeding.

Even if the road builder's vehicles created greater noise than other large vehicles that moved along the highway in front of the mink farmer's ranch, the mink farmer had no right to preclude the road builder from normal use of the highway simply because the mink-farming operation would be adversely affected. And unless the farmer had notified the road builder and the road builder knew that rock-crushing equipment affected mink, the builder could not be held liable.

Contractors' liability to property owner

THE PROBLEM: *The owner of an apartment building sued contractors for damage allegedly due to negligence of the contractors in removing streetcar tracks and pavement and in laying a sewer. Did the trial judge err in dismissing the suit?*

THE ANSWER: Yes. (Cassell v. McGuire and Hester, 10 California Reporter, 2d, 33 decided by the California District Court of Appeal, Division 1.)

The court said that the jury should have been permitted to say whether the contractors were negligent. The following points in the case were decided:

The evidence would have supported a jury finding that the contractor digging the sewer trench negligently failed to notify plaintiff of intention to excavate, operated heavy trucks on the sidewalk while trench was open, and failed to take precautions to prevent damage to plaintiff's land. The plaintiff also introduced evidence to show that such contractor departed from specifications in digging ditch with natural slope without lagging.

A municipal traffic-code provision making it unlawful to operate vehicles within a sidewalk area except on driveways, was not limited to protecting persons but was for the purpose of protecting property as well, and is applied to the claim against the contractor for damage to the apartment building allegedly resulting in part from trucks operating upon the sidewalk area.

The removal of streetcar tracks and pavement and the digging of sewer trench do not constitute ultrahazardous activity requiring application of the rule of absolute liability for damages.

The statute requiring owner to notify owners of adjacent lands and buildings of intention to excavate does not apply to contractors engaged to remove streetcar tracks and pavement, and to excavate a sewer trench.

USED BY MEN WHO BUY EQUIPMENT FOR WHAT IT SAVES

Money-Savin' Saws for Contractors

To the professional woodcutter, Homelite Chain Saws are noted for their Money-Makin' features. To the contractor, these same features are Money-Savin' advantages. It's easy to see why. Homelite Saws are rugged — cost less to maintain. They stand up to grueling day-in, day-out operation and ask for more. They're fast-cutting saws — reduce time and cost of clearing land for buildings and roads. And they're lightweight and easy-to-handle to minimize operator fatigue.

The powerful, new Homelite 707D direct drive saw shown above will fell trees up to 5 feet in diameter. Yet it weighs only 19 lbs. less bar and chain. Seven other gear-drive and direct-drive models to choose from . . . matched in power and performance to any woodcutting job. Plus Money-Savin' clearing bars, brush cutters and plunge bows. Write for complete information.

Homelite chain saw dealers and Homelite factory branches are located throughout the country. Your nearest one is as close as your phone. Call or write for convincing demonstration or fast service in any way.

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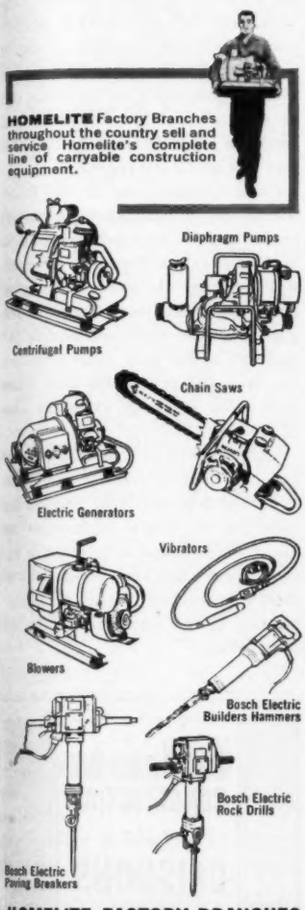
THIS 127-FOOT 55-TON ALL-WELDED BOX GIRDER, trucked by a Rogers trailer from the fabricating shop of Hetherington & Berner 200 yards away, is about to be lowered onto the foundation piers for a widened Oliver Street Bridge over the White River in Indianapolis. It is 5 feet in depth, with 48-inch flanges and internal open diaphragms every 5 feet. To form a Y approach, a welded plate girder was later angled in and attached to the box girder near its center. Between the two are positioned wide-flange floor beams, bolted to the welded hanger plates on the girder web. Channel-section shear connectors are welded every 24 inches to the top flange of the girder to anchor the concrete roadway slabs. Most of the welding was done by the submerged-arc process, using Lincoln Electric ML-3 mechanized "Squirt" welding guns. Robert L. Longardner & Associates, Indianapolis, was the engineering and architectural firm.



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SOUTH: GEORGIA: Atlanta • FLORIDA: Jacksonville, Miami • LOUISIANA: New Orleans (Metairie), Shreveport (Bossier City) • NORTH CAROLINA: Charlotte, Raleigh • OKLAHOMA: Oklahoma City • TENNESSEE: Knoxville, Memphis • TEXAS: Dallas, Lufkin

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TERRY MACHINERY CO. LTD.

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Worthington news

■ Recent appointments made by Worthington Corp., Harrison, N. J., include the following:

Fred R. Ellenberger has been elected vice president of international operations. Formerly assistant vice president, international operations, he succeeds S. Riley Williams, who continues with the firm as vice president-consultant.

John M. Daugherty has joined the company's Construction Equipment Division product sales organization as special representative. He will handle application and sales of the Worthington line of portable compressors, contractor's tools, concrete machinery, and contractor's pumps with national contractors on large construction, covering the firm's western zone from headquarters in San Francisco, and the central zone west of the Mississippi from Chicago headquarters. He was formerly with Joy Mfg. Co.

Robert J. Tumlinson has also joined the Construction Equipment product sales organization, as a distribution representative with responsibility for the Worthington line in northern Texas, Oklahoma, and New Mexico.

Alpha names sales head

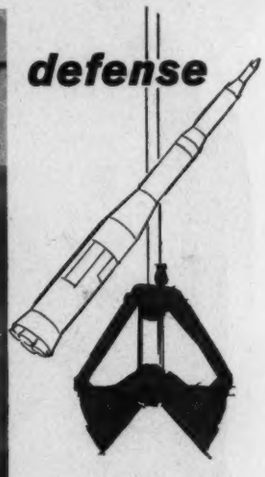
■ Jay F. Simpson is the director of sales for Alpha Portland Cement Co., Easton, Pa. Before joining Alpha, Simpson was director of sales for Barrett Division, Allied Chemical Corp.

Harnischfeger contracts with Inglis of Toronto

■ Harnischfeger Corp., Milwaukee, Wis.—through its wholly owned Harnischfeger Corp. of Canada, Ltd.—has signed a long-term manufacturing contract with John Inglis Co., Ltd., of Toronto. The agreement calls for Inglis to manufacture the complete line of P&H power cranes and shovels, and to maintain a full inventory of replacement parts.

In anticipation of the increased Canadian sales activity, Harnischfeger is currently expanding its Canadian sales and service facilities.

WILLIAMS BUCKETS DIG BIG



Construction of the first Minuteman base in the country began in March. The intercontinental ballistic missiles will be stored for instant use in 150 underground silos controlled by 15 launching centers.

It takes a lot of blasting and big digging to put a Minuteman to bed in the solid rock of central Montana. The chore for Williams Buckets is excavating shot rock from missile silos to a depth of 50 feet. It's the kind of job the Williams Bucket is built to do—heavy, steady work with no breakdowns.

Alloy steel construction, welded throughout, gives Williams clamshell and dragline buckets quality tough enough for any job.

The catalog will give you details on buckets for every application.

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For more facts, use coupon or Request Card at page 18 and circle No. 312

Hot-mix job fights traffic, tight quarters

Barber-Greene Model 879A finishers with high-speed conversions work in tandem to lay down lanes of hot-mix in the widening of Interstate I-90 at Coeur d'Alene Lake, Idaho. Ford C800 trucks with Hobbs trailers supply the finishers with hot-mix.

Getting up to 8,000 vehicles daily through a road project, while producing hot-mix and handling paving in a restricted area with a lake on one side and mountains on the other, can be a tough job. But in the case of widening a scenic route in Idaho, it was well worth the trouble.

Coeur d'Alene Lake in the Idaho panhandle has always been one of the beauty spots on transcontinental U.S. 10. Travelers of a decade or more ago will remember the scenic but narrow and winding highway clinging to the side of a steep bluff overlooking the east end of the lake. Recent visitors use only the new water-level route built a few years ago along the base of the bluff.

This is the route that was widened and improved to freeway standards as part of Interstate I-90. Each of the motorists who had to go through the job site experienced some delay or inconvenience, but the grand total of their aggravations is only a fair indication of the inconvenience to the contractors.

What it is

The business end of a powder-actuated tool, made by Ramset Fastening System. It's called the Duo-Jobmaster.®

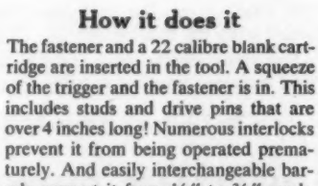
What it does

Makes fastenings to steel and concrete. You can attach furring strips to concrete in less time than it takes to tell about it. Or to steel. Sprinkler pipes too. And door bucks. Curtain wall brackets. Heating ducts. *Almost anything.*

The fastenings are made with male or female threaded studs. Or with drive pins (nails). Over 140 different fasteners are currently available.

How it does it

The fastener and a 22 calibre blank cartridge are inserted in the tool. A squeeze of the trigger and the fastener is in. This includes studs and drive pins that are over 4 inches long! Numerous interlocks prevent it from being operated prematurely. And easily interchangeable barrels convert it from ¼" to ⅜" work.



What it saves you

Time, money, effort. No time consuming drilling or plugging is required. There are no expansion bolts to insert. In some cases fastenings can be made every 15 *seconds*. Others take a little longer.

Five years of extensive use by contractors have shown that the fastenings made by this tool are at least the equal of those made by any other method. But it makes them faster and with vastly less effort. It's made by Ramset and it's the finest powder-actuated tool in existence.

Write for more information or call your local Ramset dealer. He's listed under "Tools" in The Yellow Pages.

WINCHESTER-WESTERN DIVISION Olin 288-G Winchester Ave., New Haven 4, Conn.

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CAISSONS

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The finishers work close together. In sections where the roadway is 40 feet wide, the rigs first lay 12 and 10-foot strips, then 12 and 6-foot strips; where the roadway is 38 feet wide or less, three 12-foot lanes are put down, together with necessary extensions.

One operator works two rollers behind the finishers. Intermediate rolling is done with the Bros 9-wheel self-propelled rig, left; finish rolling is being handled with the Austin-Western tandem. Breakdown passes on the first and top courses were done by 2 and 3-axle tandems, respectively.

Morrison-Knudsen Co., Inc., Boise, had the $2,174,000 contract for the grading, base, paving, and many incidentals in the widening and improvement of the 4.3 miles of road between Wolf Creek and Cedar Canyon. M-K did the grading and base and sublet the paving to United Paving, Inc., Spokane.

Two-course base

Portions of the old roadway were incorporated into the new highway, together with newly graded sections. Since there was no practical detour, traffic had to be carried through the work at all stages. This required a very careful phasing of operations so that a paved roadway was always available for traffic.

On the newly graded portions, the general contractor laid two courses of base material, each 0.3 foot thick. The first course was crushed rock graded from 1-inch down. The second course was minus ¾-inch rock.

These base materials, as well as the aggregates for the hot-mix, were produced in a quarry high up on one of the hills adjacent to the road. The material was carried from the crushing plant part way downhill by conveyors that dumped into rock ladders. This minimized segregation as the rock dropped the rest of the way.

On the road, the lifts of base rock were watered, mixed, and laid out by motor graders, then rolled with a 3-wheel steel roller and with rubber-tire rigs. At this point, United Paving took over from M-K and applied a prime coat of RC-1 cutback asphalt at a rate of 0.3 gallon per square yard.

Plant in a tight spot

Most of the grading section along the lake shore was made by filling in the lake at the base of the steep bluff. Except for a few small areas, the new roadways occupied practically all of this bench, with the water on one side and a steep bank on the other. United used one of these few small flat areas beside the roadway for its asphalt plant, but it was a tight spot.

(*Continued on next page*)

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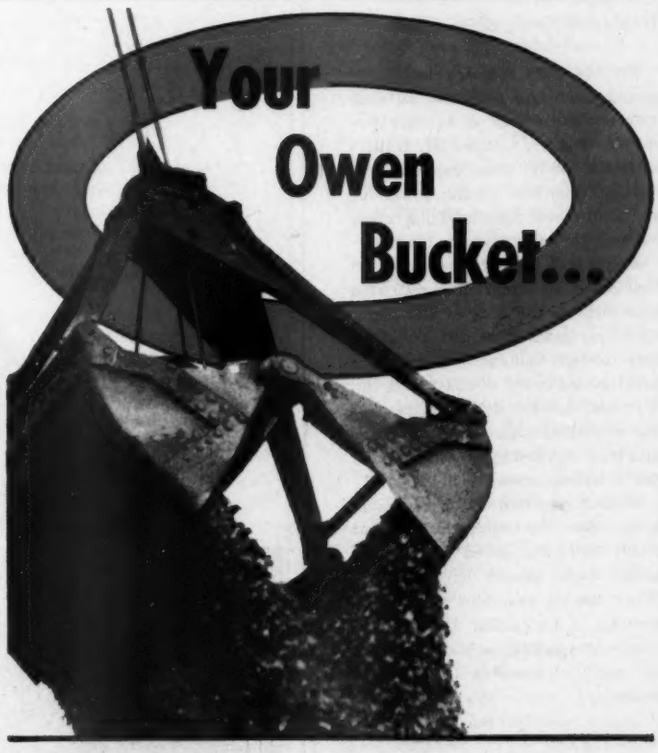

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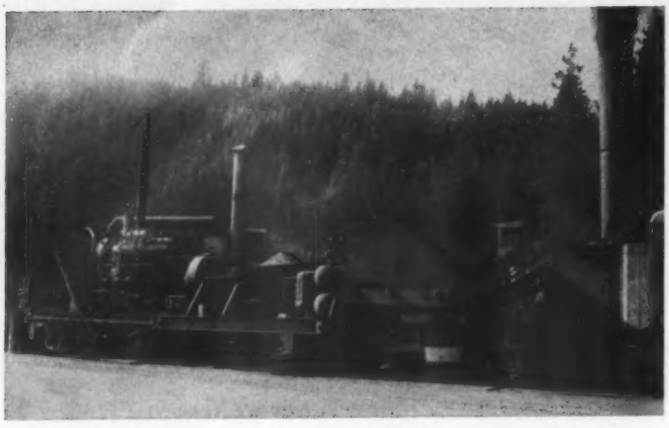

This Standard plant, operating in one of the tightest spots imaginable for a hot-mix setup—a narrow strip between highway and hill—supplies job requirements. A Michigan 175A tractor shovel feeds aggregates to the 5,500-pound plant, which has a 9 × 32-foot dryer burning No. 5 oil.

A big GM 8-268A diesel generator set, providing electric power to operate the hot-mix setup occupies the confined space between the highway and the plant. When this big generator was not in use by the contractor, another generator supplied standby power for heating and lighting.

(*Continued from preceding page*)

The Standard (Los Angeles) 5,500-pound batch-type plant was set back from the roadway as far as space permitted. The big GM 8-268A trailer-mounted 500-hp diesel generator set that provided the electric power for the plant took the remaining space between the plant and the roadway.

A Michigan 175A tractor shovel fed the materials from the restricted stockpiles to the bins of the plant. The aggregates were fed from the bins through calibrated feeders to a belt that led to the 9 × 32-foot dryer. The hot elevator delivered them to the gradation unit atop the plant, and they traveled by gravity through the weighing section to the pugmill.

Asphalt, received by truck transports from the Husky refinery at Cody, Wyo., was stored in a 15,000-gallon tank heated by electricity. When the big generator set was not running, a Caterpillar D13000 generator set supplied the standby power for such purposes as lighting and heating.

Two pavers speed laydown

A fleet of Ford C800 trucks with Hobbs 12-yard cable-dump trailers hauled 16-ton loads of the hot-mix from the plant to two Barber-Greene finishers on the road. These were the B-G 879A models with high-speed conversions, and they laid the mix at a rapid rate.

Roadway widths on the job ranged from 37 to more than 41 feet. For the 37 and 38-foot widths, the pavers laid three 12-foot lanes, carrying enough material out to the side to make up the necessary width. On the wider roadways, they made two passes each. On the first round, they usually laid a 12 and a 10-foot lane. On the second round, they laid a 12-foot lane and a narrower finishing strip to get the required dimension.

The first course of bituminous surfacing consisted of ¾-inch maximum-size rock with 5.2 per cent asphalt. It was laid to 0.2-foot compacted thickness. The second course of surfacing had maximum ⅝-inch rock with 5.4 per cent asphalt, and was laid to a thickness of 0.1 foot. This second course was laid right over the decks of the bridges on the job.

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Finishing a construction job ahead of schedule means extra profits. When you win your next contract, see the Gardner-Denver specialist. He'll help you choose the right equipment to get you off to a fast start—and stay ahead of schedule.

The two pavers always worked close together and on the same course. The lead machine was manned by a full crew, but the second machine usually carried only two workmen. Others dropped back from the first machine when additional help was required.

Three rollers for two pavers

Three rollers were able to keep pace with the two pavers. The breakdown rolling was done by a Buffalo-Springfield 3-axle tandem on the top course and a 2-axle tandem on the first course. The breakdown was followed by a thorough rolling with a Bros self-propelled rubber-tire roller. The finish rolling was done by an Austin-Western tandem. Both the rubber-tire and the finishing roller were run by the same operator, who had ample time to switch from one machine to the other to handle both operations.

The 10 and 4-foot outer and inner shoulders, respectively, were sealed with an application of 120 to 150-penetration asphalt applied at a rate of 0.2 gallon per square yard. A Flaherty spreader applied a coating of light-colored crushed-gravel chips, which were rolled by both rubber-tire and steel rollers.

Work for the general contractor, Morrison-Knudsen Co., Inc., was supervised by superintendent C. K. "Smiley" Anderson. The crews of United Paving, Inc., were handled by C. H. "Chuck" Mills, owner of the company, who was on the job most of the time that paving was under way. James Perry had charge of the asphalt plant, and Eddie Ranniger ran the laydown operations.

The resident engineer for the Idaho Department of Highways on the work was O. L. Grunerud. The project chief was Sid Scribner. The work was supervised by the Coeur d'Alene District under district engineer John F. Pearring. For the Idaho department, A. F. Rath is construction engineer and G. Bryce Bennett is state highway engineer. THE END

Massey-Ferguson appoints

■ Massey-Ferguson, Inc. has appointed Lee E. Elfes director of engineering for North America. Elfes was formerly executive engineer for the company and will maintain his office at the Engineering Division in Detroit.

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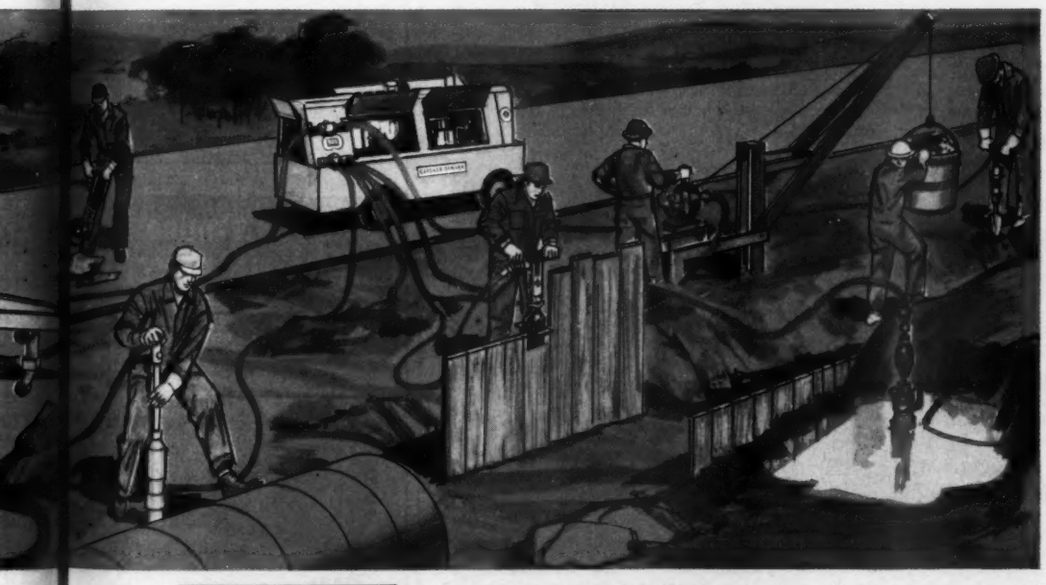

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Builders' group elects; members named by AGC

New officers were elected by the Metropolitan Builders Association at the group's 27th annual dinner held recently in New York City.

Nicholas B. O'Connell will serve as president of the Association. He is vice president and director of the Turner Construction Co., and a vice president of the Building Trades Employers' Association of New York City.

Other officers elected were Saul Horowitz, Jr., vice president of the H. R. H. Construction Corp., first vice president; Robert A. Escher, president of the White Construction Co., Inc., second vice president; Maurice Madison, president of the Nicholson Co., Inc., secretary; and Robert Rheinstein, vice president of the Rheinstein Construction Co., Inc., treasurer.

Ralph L. Crow, immediate past president of the association, and Charles A. Selby have been named directors of the group.

Five members of the association have been appointed to national committees by the Associated General Contractors of America. They are: Roger Corbetta, president of Corbetta Construction Co., Inc., to the Bureau of Yards and Docks task unit; Robert A. Escher, president of White Construction Co., Inc., construction markets committee; Nicholas B. O'Connell, vice president of Turner Construction Co. and president of the MBA, labor committee and labor policy and negotiations subcommittee; Charles A. Selby, president of Vermilya-Brown Co., Inc., membership development committee; and Harry C. Turner, president of Turner Construction Co., material supply committee as chairman of the finance committee.

GMC truck "road test"

■ GMC Truck & Coach Division, Pontiac, Mich., has instituted a quality-control program in which GMC trucks are scientifically "road-tested" without having to leave factory grounds.

Light, medium, and heavy-duty trucks are put through their paces on an electrically driven chassis dynamometer that simulates road travel and gages the vehicles' performance under actual driving conditions. More than 20 performance characteristics are tested, including engine efficiency and drive-train operation.

CF&I elects directors, expands steel plant

■ The Colorado Fuel & Iron Corp., New York, N. Y., has re-elected as directors for 3-year terms Samuel D. Lunt, George C. Textor, and John B. Welborn. James W. Deer was newly elected for a 3-year term as director.

CF&I is undertaking a $15 million program of expansion and modernization at its Pueblo, Colo., steel plant. The program will provide for the rolling of wide-flange beams in a range suited to the firm's western market.

Names in the News

CIMA-sponsored group elects 1961 chairman

The Continuous Trenching Equipment Bureau, sponsored by the Construction Industry Manufacturers Association, has elected as its chairman for 1961 R. W. Steegman, assistant sales manager of the Construction Machinery Division, Gar Wood Industries, Inc., Findlay, Ohio.

Other companies represented in the bureau are Barber-Greene Co., the Cleveland Trencher Co., and the Parsons Co., a division of Koehring Co. The group sponsors programs designed to promote the use of members' products, preparation of engineering guidance material, discussion of mutual industry problems, and reporting of business statistics.

NCSA names new director

Clarence E. Killebrew has been elected to the board of directors of the Manufacturers' Division of the National Crushed Stone Association, Washington, D. C.

Killebrew is a vice president and director of Clark Equipment Co., Benton Harbor, Mich., and is general manager of Clark's Construction Machinery Division.

ASCE section elects, makes annual award

The Metropolitan Section of the American Society of Civil Engineers, New York, N. Y., has elected Gardner M. Reynolds president. Reynolds is resident partner of Dames & Moore, soil-mechanics and foundation specialists. Arthur J. Fox is vice president; Gordon Wallace is treasurer; and Brother B. Austin Barry was re-elected secretary.

Waldo G. Bowman has been selected as Metropolitan Civil Engineer of the Year by the ASCE section. Bowman is editor in chief of *Engineering News-Record*. He served ASCE as a director from 1949 to 1951, and as vice president during the 1958–59 term.

C. G. Davis, vice president . . .

T. A. Fearnside, vice president . . .

F. R. Stevens, vice president of Stone & Webster Engineering Corp.

Stone & Webster names new veeps

Three new vice presidents of the Stone & Webster Engineering Corp., of Boston and New York, were recently elected by the board of directors.

Promoted to the new posts were: C. G. Davis, a construction manager; T. A. Fearnside, manager of engineering; and F. R. Stevens, labor-relations consultant and former personnel manager.

Soils consultant names

Robert H. Fox has been appointed assistant project engineer for Woodward-Clyde-Sherard & Associates, Montclair, N. J., consulting engineer-

DISTRIBUTOR DAN, the SKF bearing man, shows

HOW TO PROTECT YOUR BEARINGS IN THE FIELD

DIRT AND MOISTURE DID THE DAMAGE. The bearing ring on the left failed prematurely because fine dirt particles acted as an abrasive, causing wear. The bearing on the right had to be replaced because of the abrasive action of rust.

START WITH PROPER STORAGE. New bearings come wrapped in dustproof paper. If this wrapping is opened or torn, wash the bearing. Use a clean pail of kerosene or light oil. Dry bearing with compressed air, then dip in anti-rust compound, rewrap and box.

LOVE THAT LUBRICANT and those oil cans and grease guns! Clean oil and grease will carry dirt out when they purge the old lubricant. Whereas, dirty oil and grease carry dirt with them into the bearing. So keep your lubricating equipment clean and don't use lubricants that have been exposed to dust and dirt.

SAVE YOURSELF SEAL TROUBLE. Replace bent or worn seals (which allow dirt to enter) when you install or inspect bearings. You can now get tight, effective double-lipped TySeal tapered roller bearings that fit exactly the same space as standard unsealed tapered roller bearings.

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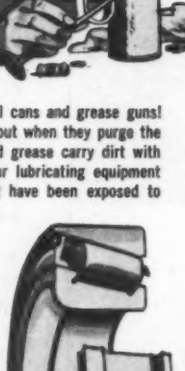

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Model 274M "Michimho"

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Material • Location • Quantity

Complete determinations of sub-soil layers are made with this 20-lb instrument. Location and composition of layers 100-ft. or more below the surface can be accurately plotted.

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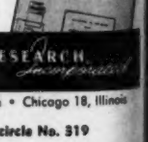

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ing firm specializing in soil and foundation engineering.

Fox formerly served with the U. S. Department of Agriculture in its New Jersey Soil Conservation Service as assistant to the senior design engineer in the Watershed Protection and Flood Prevention Programs.

Photogrammetry group names two new officers

The Association of Professional Photogrammetrists, Jenkintown, Pa., has appointed two new officials.

John H. Wickham, Jr., has been named the new executive director of the association, which provides maps and related engineering services for federal and local governments, consulting engineers, and large-scale civil engineering projects. Wickham succeeds Col. John G. Ladd, who has retired.

Marshall S. Wright, Jr., is the new chairman of the executive committee of the association. He is manager of the Washington, D. C., office of Lockwood, Kessler & Bartlett, consulting engineers. He succeeds A. O. Quinn.

The organization recently moved its headquarters to Jenkintown from Washington, D. C.

CCI grants fellowship for highway survey

The Calcium Chloride Institute, Washington, D. C., has granted a research fellowship to Raymond Simon, associate professor and public-relations surveys coordinator at Utica (N. Y.) college of Syracuse University.

The grant will be used for a pilot study in Iowa and Pennsylvania, and will consist of three independent surveys on road construction and maintenance. Questionnaires have been sent to 360 selected township supervisors in Pennsylvania, and to all 99 county engineers and 367 county supervisors in Iowa.

Construction estimating company is organized

Construction Estimating, Inc., South Windsor, Conn., a firm providing quantity and cost-estimating service for the heavy-construction and building industries, has named Marvin Gates president and Francis V. Rossi vice president—treasurer.

Gates has been a regular contributor to construction and engineering periodicals for several years, and has been associated with various consulting engineers and contractors.

Since 1946, Rossi has been employed in supervisory and administrative capacities on major New England construction projects.

Consultant is honored

The Exchange Club of Long Beach, Calif., has named M. A. Nishkian, consulting engineer of that city, Citizen of the Year. Presentation of the award was made to Nishkian at the club's annual Citizen of the Year luncheon.

AICE elects new member

John Clarkeson, president of the Clarkeson Engineering Co., Inc., of Boston and the firm of John Clarkeson, Consulting Engineer, with offices in Albany, Providence, and New York City, has been elected to membership in the American Institute of Consulting Engineers.

Clarkeson has directed the activities of his firm in the planning, design, and supervision of construction of many major highways, as well as municipal-improvement, airport, and other projects.

Highway contractor cited

■ Joseph D. Bonness, Milwaukee highway contractor, was named Marquette University's 1961 Alumnus of the Year to be honored at the university's commencement exercises, June 4, at the Milwaukee Arena.

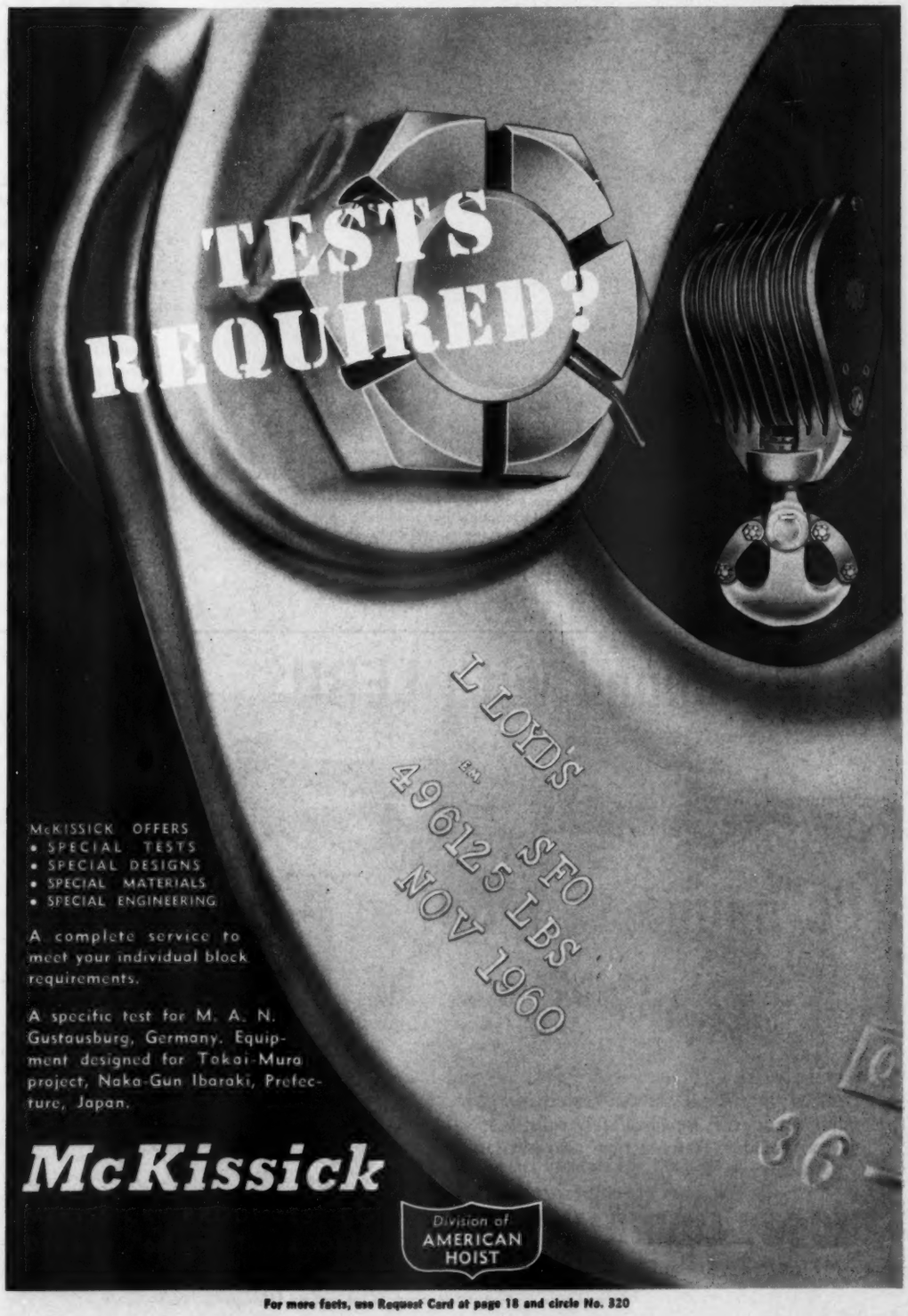
Bonness is chairman of the board of Joseph D. Bonness, Inc., and also heads Highway Pavers, Inc., and Koch & Bonness, Inc. He is a past president of the Wisconsin Road Builders Association and of the Contractors Division of the American Road Builders Association.

NSPE presents '61 award for outstanding service

The National Society of Professional Engineers, Washington, D. C., has selected Lief J. Sverdrup, president and director of the engineering firm of Sverdrup & Parcel, Inc., as the recipient of its 1961 award for outstanding service to the engineering profession.

Lief J. Sverdrup, president of Sverdrup & Parcel, Inc., recipient of NSPE 1961 award.

Sverdrup's engineering career began with the Minnesota State Highway Department in 1921. He joined the Missouri State Highway Department a year later, and after rising to the position of chief bridge engineer, left to form his own firm.



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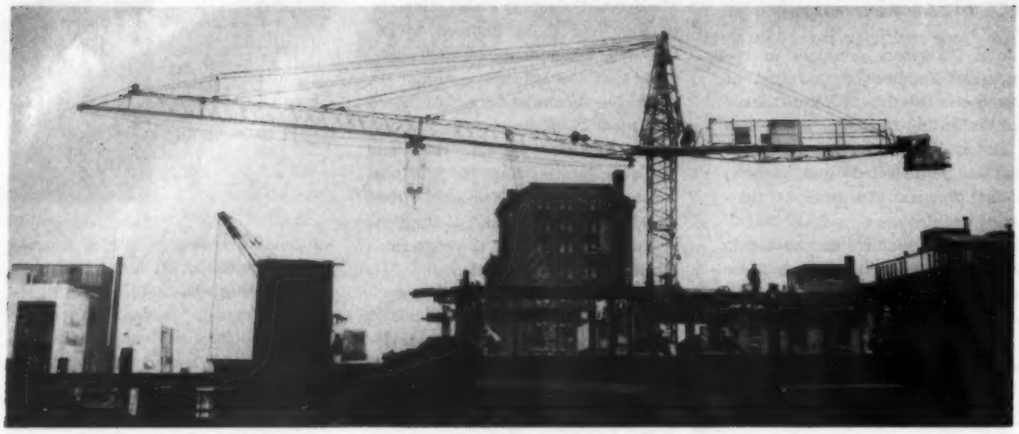

Demolition of the 25-story Palmer House garage in Chicago is being done at a rate of two floors per week, with this Concretor-Linden climbing crane—imported here by B. M. Heede—handling scrap steel to trucks at ground level. The rig's 84-foot horizontal boom has a traveling hook; electric operating equipment is mounted on the 27-foot counterbalancing arm. Using remote controls, a man at floor level operates the rig. Small pieces of steel go into a halved tank section that the crane dumps to trucks. The 60-foot tower is braced on the third or fourth floor below the working level, at the center of the structure.

The Concretor-Linden works high above a Pecco tower crane with 114-foot tower and 113-foot jib that handles scrap steel on a group of three buildings—two 17 stories and one 8 stories high—that are included in the project.

Big cranes dominate wrecking job

Knocking down a tall building often requires as much skill and ingenuity as putting one up. The smart wrecking contractor has well trained men and modern equipment. The superintendent follows carefully planned progress schedules. In this hazardous work, he keeps a close watch on job safety.

These procedures are currently being followed in Chicago's Loop by the Cleveland Wrecking Co. on one of the biggest demolition jobs in the country. One 25-story building—the Palmer House garage—two 17-story buildings, and a number of smaller structures are on their way down. The buildings are crowded together in two half-blocks at the intersection of Dearborn and Quincy Streets.

The $1 million wrecking job will clear the ground for the new Courthouse and Federal Office Building. The general contractor for the project is A. L. Jackson Co., Chicago. Four architects contribute to the design of the multimillion-dollar structure: Schmidt, Garden & Erikson; Ludwig Meis Van Der Rohe; Naess & Murphy; and A. Epstein & Sons, Inc.

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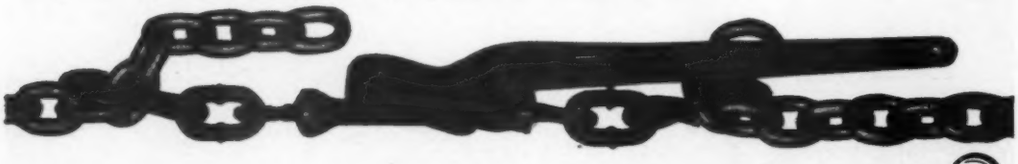

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Model 125

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A signalman motions to the operator of the climbing crane in one of the rare instances when the operator does not have a direct view of the lift. Generally, the operator walks around with remote controls where he can see the operations. The crane uses a winch to lower itself to the next floor.

For the dismantling of the steel-frame brick-walled buildings, Cleveland Wrecking Co. makes use of the latest construction equipment. In action for the first time in the wrecking field, a Danish-made climbing crane perches on the upper floors of the 25-story building. It handles the lowering of scrap steel and the positioning of a small skid-mounted Schield Bantam crane that knocks out the floors with a headache ball.

On a group of three buildings, the increasingly popular Pecco tower crane is used for the big lifts. The track-mounted rig can reach to heights of 210 feet.

Climbing crane has advantages

Wrecking of the 25-story Palmer House garage posed certain demolition problems. Its 300-foot height made it impossible to reach with ground-stationed cranes. Generally, it would have been tackled with a guy derrick, but the contractor decided to try one of the new climbing cranes, the Con-

(Continued on next page)

The Pecco tower crane lifts a Schield Bantam crane to a new working position. Skids on the "flying" crane reduce its weight to 8,500 pounds. The small rig operates with a 1,000-pound headache ball on the upper floors of structures being demolished.

ANOTHER COMPLETE DRAINAGE STRUCTURE FROM SYRO

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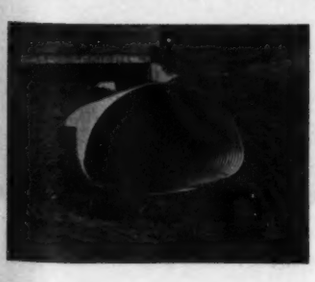
For economy, strength, durability . . . specify SYRO STRUCTURAL PLATE.

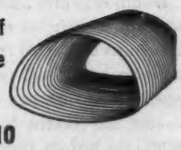
And, remember SYRO for STEEL BEAM GUARD RAIL!



This Syro structure was assembled in just two days. It is now ready to replace the narrow, unsafe bridge in the background.

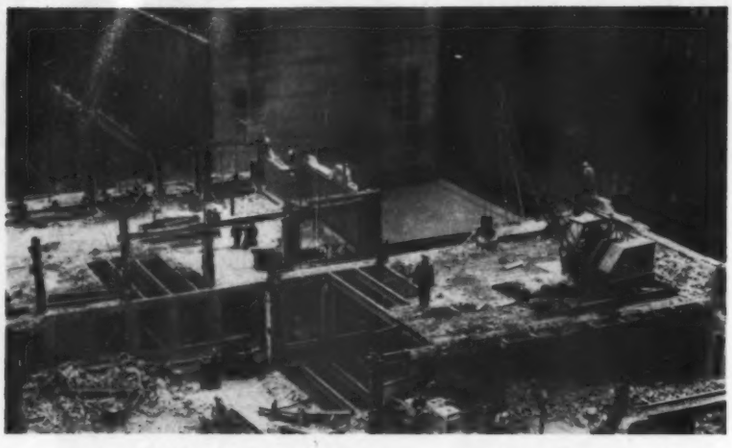
THE MARK of PROGRESS

For further information or the name of your nearest Syro distributor, write, wire or call



SYRO STEEL CO., GIRARD, OHIO

For more facts, use Request Card at page 18 and circle No. 323



While the Schield Bantam crane works on an upper floor, a Hough ⅞-yard loader on the next lower level cleans up and dumps rubble down the elevator shafts to be cleared out by a tractor-loader.

Brick and rubble are cleaned up swiftly by a Hough ⅞-yard rubber-tire loader. The rig scoops up the debris and dumps it into the open elevator shaft. The material is later cleaned out at the bottom of the shaft by a Caterpillar 977 Traxcavator.

On sides of the building that are near adjacent structures, Safway tubular scaffolding is built up from the ground level. Men work from the scaffolding to knock out the brick walls. On other sides of the building, hanging scaffolding is used. Steel columns and beams are cut out with torches. About ten "burners" are kept busy on the project.

Tower crane takes three

As the climbing crane chews away at the 25-story garage, a Pecco tower crane is occupied with a group of three buildings across the street. Here, there is an 8-story theater sandwiched between two 17-story brick and steel buildings.

The wrecking operation is similar to that on the 25-story building except that the tower crane does all the major lifting. With its 114-foot tower and 113-foot jib, it can reach 210 feet above the ground. The electrically controlled and operated rig moves on 160 feet of track set along one side of the building group. With its 5-ton load capacity (at 75 degrees jib angle) the tower crane has no trouble lifting the small "flying" crane.

Progress charts

To keep the work on schedule, a progress chart is maintained for each

(Continued from preceding page)

cretor-Linden recently introduced to this country by B. M. Heede, Inc., Long Island City, N. Y.

With its 84-foot horizontal boom and 27-foot counterbalance, the crane can reach any point on the working floor. Located near the center of the building, the 60-foot tower of the rig is based on the third or fourth floor below the working level. The tower is braced against two floors of the building frame.

All controls and operating machinery are electric. Operating machinery is stationed on the counterbalancing arm. Using remote controls, the operator of the crane moves around on the building floor to the point where he can best see the load. At a radius of 33 feet, the crane can pick up 10,000 pounds. At the limits of its reach, it can lift about 4,400 pounds.

One of the crane's principal advantages over a guy derrick is the ease with which it moves from floor to floor. The contractor generally lowered the crane one floor at a time, but it can be "jumped" two, and even three, floors. The crane uses its own hoisting winch to lower itself. The superintendent on the job reported that it took only about 2½ hours to lower the crane one floor.

The crane lowers wrecked-out steel from the working floor to trucks waiting at ground level. Smaller pieces of steel are lifted in a basket made of a halved tank section. In unloading the basket on the truck, two of the four connection points are freed. The basket then unloads itself as it is raised.

"Flying" crane

The climbing crane also lifts a small Schield Bantam crane from spot to spot and from floor to floor. The fly-weight crane handles a 1,000-pound ball as it knocks out the floor around it. It also snakes out steel and does miscellaneous lifting work.

Modified to give a low bearing pressure and a low total weight, the small crane was converted from a T250 motor crane. The truck part of the crane was replaced by two steel skids, reducing the weight to 8,500 pounds. With its 30-foot boom, the rig can pick up 5 tons.

THE NEWEST REASON TO MAKE
YOUR NEXT CHASSIS A FORD

ALL-NEW FORD
BIG SIX
262 CU. IN. TRUCK ENGINE

FORD DIVISION, Ford Motor Company,

New F-600 toughness! New stronger frame... huskier cab... rugged truck suspension that can give twice the front tire life of other types!

of the three large buildings. The chart sets up a time schedule for the floor-by-floor demolition of each building. Normally the crews knock off two stories a week on the 25-story garage, and one story a week on each of the two 17-story buildings. This organized destruction is accomplished by 109 men working three shifts from 6 in the morning to 11 o'clock at night. At this rate, Cleveland Wrecking Co. expects to have the job done by September.

Job safety

With men constantly knocking the floors out from under their feet, wrecking is hazardous work. Constant attention is paid to job safety. To eliminate the danger of running into live lines, the contractor had all utilities in the building disconnected before demolition started. Temporary electric lines are run to the working level to provide light for night work and electric power for the climbing crane.

To keep the dust down, the fire sprinkler system in the building is converted to the contractor's use. Hand hoses attached to the sprinkler system keep the dust down on the working level. A spraybar, two floors below the working level, sprays water into the elevator shaft where the rubble is dumped.

To protect men on the ground from falling debris, windows in the dump shafts are carefully boarded up. Scaffolding rims the walls of the building in critical areas. The hard-hat regulation is strictly enforced. Job safety meetings are held every other week. At the time the project was visited, there had been no serious accidents.

Personnel

Edwin Rose is vice president in charge of the Chicago Division of Cleveland Wrecking Co. Elliot D. Stern is project manager, and Henry Eiler is general superintendent.

THE END

Fairchild representative

Fairchild Camera & Instrument Corp., Los Angeles, has named Horton Dennis & Associates, Seattle, Wash., civil engineering and surveying firm, sales representative in Washington for its Aerial Surveys Division.

A Los Angeles contractor was able to cut 400 linear feet of 5-foot-wide asphalt pavement each hour without pushing, using this Ottawa Commando Hydra-Hammer.

Breaker gives good rate in asphalt-cutting job

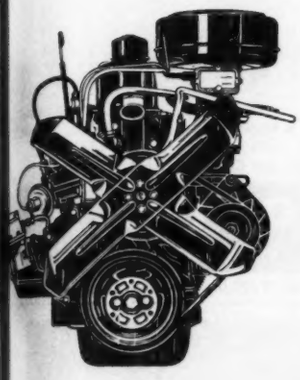
As subcontractor for a storm-sewer project, Noel McNeel, Los Angeles contractor, used an Ottawa Commando Hydra-Hammer to cut a 5-foot-wide trench, 5 blocks long, in 5-inch-thick asphalt.

McNeel made four passes, cutting out 400 linear feet of 5-foot-wide pavement every hour without pushing. This equaled 2,000 square feet of asphalt per hour. After cutting the four strips to a 5-foot width, McNeel drove the Commando over the area to break the asphalt into small pieces.

On the basis of using the Commando, McNeel reports that for bidding jobs he figures 2,500 to 3,000 linear feet of asphalt cutting per 8-hour day. When demolition of 8-inch or 9-inch concrete is involved, he figures on breaking out 15,000 square feet in 8 hours.

Write to the Equipment Division, Young Spring & Wire Corp., Dept. C&E, 500 Lehman Ave., Bowling Green, Ohio, or circle No. 118 on Request Card at page 18.

THE ARROW MODEL G-400 hydraulic mobile hammer shown here is breaking out old concrete floor slabs and footings at an abandoned Army camp at Fort Logan, Colo. In breaking slabs 4 to 6 inches thick and footings up to 18 inches thick, this Arrow accomplished more work in shorter time than 8 men using air equipment, according to a report by the contractor. Write to the Arrow Mfg. Co., Dept. C&E, Box 4120 S. Denver Station, Denver 9, Colo., or circle No. 64 on Request Card at page 18.



Now, the economy of a Six is combined with the dependability of heavy-duty, *exclusive-truck* engine design. In independent tests, Ford's new Big Six was pitted against the major competitive Six. Certified* result: Ford Trucks gave 13.5% better gas economy! And Ford recommends 34% fewer service operations in 25,000 miles of customer service. This means less time in the shop . . . more time on the job.

The new Big Six is one of *four* engine choices in Ford F-600 trucks for '61—including America's most popular truck V-8's. See your Ford Dealer. He will be glad to help you select the best engine for your job.

**Tests simulated typical city delivery and shuttle service*

SEVEN MORE REASONS

WHY IT'S GOOD BUSINESS TO DO BUSINESS WITH FORD!

save from the start with Ford's traditionally low ices, and your savings continue with low operating d maintenance costs. These facts are documented by rtified test reports from America's foremost inde-ndent automotive research firm. Ask to see these orts. They're on file at your Ford Dealer's.

In addition to these dollar-and-cents savings, the llowing bonus benefits are yours with Ford Trucks:

Rigid quality controls give you the strongest safeguard truck reliability ever. Modern, *exclusive-truck* manu-cturing facilities, with emphasis on quality every step the way, are designed to give you a Ford Truck that as free from defects as a truck can be. Tangible results these high standards are Ford's new warranties.

Exclusive 100,000-mile warranty (or 24 months) on 01-, 477- and 534-cu. in. Super Duty V-8's is the most eral in the industry. Each major engine part (includ-g block, heads, crankshaft, valves, pistons, rings), hen engine is used in normal service, is warranted by ur dealer against defects in material or workmanship r 100,000 miles or 24 months, whichever comes first. he warranty covers full cost of replacement parts . . . ll labor costs for first year or 50,000 miles, sliding rcentage scale thereafter.

12,000-mile warranty (or 12 months) on all 1961 Ford rucks of every size is further evidence of the confidence rd has in its quality controls. Each part, except tires d tubes, is now warranted by your dealer against defects in material or workmanship for 12 months or 12,000 miles, whichever comes first. The warranty does not apply, of course, to normal maintenance service or to the replacement in normal maintenance of parts such as filters, spark plugs and ignition points.

4. Special fleet financing can be arranged by your Ford Dealer. It's available for owners of two or more trucks, and provides the opportunity to precisely tailor payments to your income patterns or depreciation schedules. This fleet-fitted financing offers substantial savings and frees your working capital.

5. Sales engineers and service specialists in 36 district offices are on call to solve special truck problems. Working with both dealers and customers, these experienced truck men represent another extra step Ford takes to provide your continued satisfaction.

6. Replacement parts depots at 26 strategic locations across the country quickly supply needed parts from ample stocks. Ford's entire supply system is geared to give you faster service and reduce costly downtime . . . *wherever* you are.

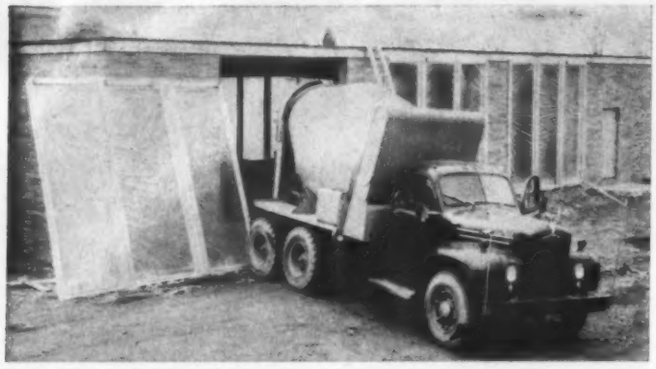
7. 6,800 Ford Dealers, including 280 specialized Heavy Duty truck dealers, can keep your trucks ready to go wherever they go. From coast to coast, fast Ford service—gas *and* Diesel—is always close at hand.

From Super Economy pickups to Diesel-powered tractors, you can now fill every truck need up to 76,800 pounds GCW with a modern, money-saving Ford Truck.

FORD TRUCKS COST LESS

SEE YOUR FORD DEALER'S "CERTIFIED ECONOMY BOOK" FOR PROOF!

For more facts, use Request Card at page 18 and circle No. 324



In placing concrete for the floor slab of this new church, contractor George E. Otteni, McKean, Pa., had his crew move the Visqueen frames aside only at the point of placement. This kept the interior warm and also aided in curing the concrete.

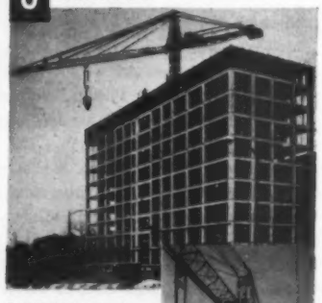
Transparent film encloses work, speeds project

"We estimate that Visqueen film saved us at least three weeks on this job," says George E. Otteni, general contractor of McKean, Pa. The project was construction of the Fairview Methodist Church in Fairview, Pa., and the problem was to permit work on the interior despite inclement weather.

In order to keep the job moving, Otteni built 12 × 12-foot and 16 × 18-foot panels and wedge-shaped frames out of 2 × 4's and other lumber. On these he lath-nailed clear Visqueen film .006 inch in thickness. The lightweight film made it easy to move the frames from the windows during concrete placing for the floor slab.

Write to the Visking Co., Dept. C&E, 6733 W. 65th St., Chicago 38, Ill., or circle No. 125 on Request Card at page 18.

"CONCRETOR"–LINDEN CLIMBING-CRANES BRING COSTS DOWN 6 WAYS!



B. A. W. Construction Co., Inc. uses "CONCRETOR"-LINDEN CLIMBING-CRANE to speed production, reduce costs on 13 story Buffalo, N.Y. apartment building.

1 Speeds production—"Concretor"-Linden Climbing-Crane goes up with the building while work is in progress... 2-3 floors at a time... the sky's the limit! Raises itself by new patented hydraulic climbing system, with push-button operation. No climbing ropes or pulley blocks.

2 Eliminates rehandling of materials over unnecessary ramps and runways. Unequalled where space is limited because "Concretor"-Linden Climbing-Cranes work from the top. No street access necessary.

3 Places loads where they're wanted! 100' jib rotates in full circle, up to 100' radius. Crane slews, hoists, luffs simultaneously.

4 Remote-controlled by 1 man from working deck. Noiseless—Electrical operation... eliminates hazards.

5 Pays for itself in 2 years with ordinary use. Eliminates costly diesel fuel. Almost maintenance-free. Costs about half what you'd expect to pay for earth-bound cranes of similar capacity.

6 Successfully used for demolition—stays on top. Set in a 4'3" square well in the building—comes down with the job.

Recommended for all types of industrial, apartment and office buildings, silos, water towers, bridges, viaducts, etc.

RENTAL/PURCHASE PLANS. Delivered anywhere in U.S. Factory-trained service engineers available.

For literature address Dept. CE-7

B. M. HEEDE, INC.
30-01 37th Avenue, Long Island City 1, N.Y.
B. M. HEEDE CALIFORNIA, INC.
951 North Linden Ave., South San Francisco, Cal.

For more facts, circle No. 325

Minnesota Automotive makes two promotions

■ Tom Bonfield has been promoted to assistant sales manager of Minnesota Automotive, Inc., Mankato, Minn. He was previously eastern regional manager for the company.

H. S. Townsend succeeds Bonfield as eastern regional manager. He was formerly with the home office.

New Willys appointment

■ C. M. Ritchey has been named director of advertising, merchandising, and public relations for Willys Motors, Inc., Toledo, Ohio. For the past three years, he has been director of advertising and merchandising for the company.

Air Reduction News

■ Air Reduction Co., Inc., New York, N. Y., and Speer Carbon Co., St. Marys, Pa., have made an agreement by which Air Reduction will acquire Speer Carbon's assets and business in exchange for the former's common stock at the rate of one share of Air Reduction stock for each 2.25 shares of Speer Carbon stock. Both company boards and Speer stockholders must approve.

Air Reduction produces industrial gases and welding and cutting equipment, medical gases and equipment, and chemicals. Speer Carbon produces carbon and graphite products, and electronics products.

Koehring Division personnel news

■ E. A. Brugger, president and general manager of the Koehring Division of Koehring Co., Milwaukee, Wis., has been transferred abroad in connection with the company's European and overseas activities. His headquarters will be in Paris, France.

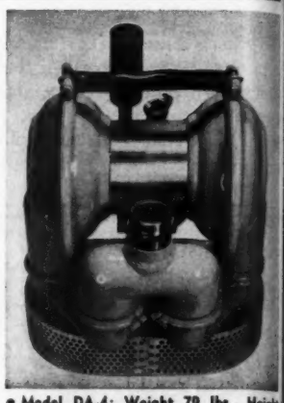
Brugger has been on the company's board of directors since 1950, and will continue as a director.

Charles E. Petot has been named a district representative for the Koehring Division. He will cover Kentucky, Ohio, Indiana, and Michigan from headquarters in Cleveland.

Petot served as a salesman for Equipment & Supplies, Inc., Pittsburgh, Pa., a distributor of construction equipment, for eight years before joining Koehring.

THE LATEST IN DIAPHRAGM PUMPS!
Another new
LAYTON PNEUMATIC PUMP

- Powered by compressed air for more effective, more efficient pumping of liquids containing high percentage of solids or just plain water. Requires just 20 c.f.m. of air at 100 p.s.i. Discharges 6300 g.p.h. at 10 ft. discharge head — 2160 g.p.h. at 100 ft.
- Layton pumps are one-man portable . . . self-priming . . . quiet in operation . . . safe . . . fireproof . . . odorless. Submerge in liquid or use suction hose.
- The handiest pumps for dewatering trenches, caissons, shafts, foundation holes, tunnel headings, sumps, sludge.



• Model DA-4; Weight 79 lbs., Height 21", Length 16¼", Width 16¼".

• Distributors in ALL Principal Cities — Write for Catalog or Further Details

LAYTON CO., INC.
P.O. BOX 87A, CUDAHY, WISC. Phone: HUMBOLDT 1-4400

For more facts, use Request Card at page 18 and circle No. 326

Patch ROADS THE LOW COST WAY

Temperature Easily Controlled
•
Easy to Transport
•
Saves Money on Patchwork

STANDARD STEEL TAR-KETTLES

PATCH AND MOVE ON IN MINUTES AND SECONDS

With this Standard Steel Model "S" Kettle, "cold spots" or "burnt materials" are eliminated. You get uniformity of heat throughout the entire mass of material. Steady temperature at the correct level is maintained all day long. Easily transported—equipped with special safety features—it's a fast worker. With a motor spray attachment, it is even more efficient for road maintenance. Standard Steel also offers a complete line of crack filling pots, shoulder rollers and other road maintenance equipment.

WRITE FOR CATALOG AND PRICES

OTHER PRODUCTS OF STANDARD STEEL

Asphalt Pressure Distributors, Maintenance Distributors, Patch Rollers, Supply Tanks, Tool Heaters, Asphalt Tools, Street Flushers, Construction Brooms.

Built to the Highest Standard

Standard Steel Works, Inc. NORTH KANSAS CITY, MO.

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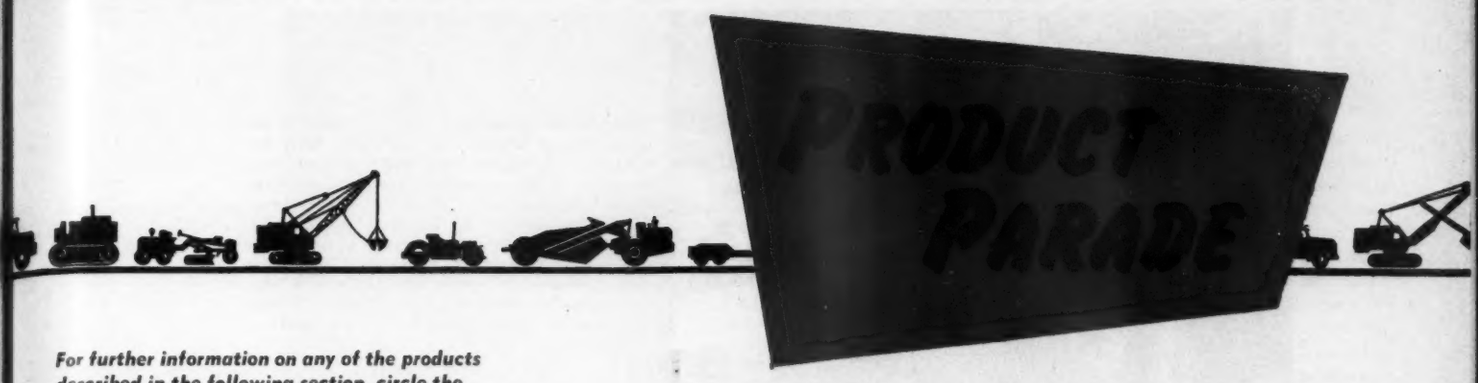

For further information on any of the products described in the following section, circle the designated number on the Request Card at page 18.

Tractor-mounted air compressors

Two new tractor-mounted air compressors capable of delivering 125 and 100 cfm at pressures up to 100 psi have been announced by Atlas Copco, Inc.

Designed to draw their power supply from the tractor engine, the new units are 2-cylinder, 2-stage, single-acting, air-cooled, V-type models with intercooling between stages.

The compressors are equipped with adjustable connecting points and are intended for mounting on tractors with 3-point hydraulic linkage systems. A splined propeller shaft connects to the tractor's power takeoff. Mounting or dismounting is said to be accomplished in a matter of minutes.

Two models, the 125NT and the 100IT, are offered. Comparatively light in weight, they can be operated either on the ground or in the suspended position without affecting the balance of the tractor. Air power thus can be provided at short notice when and where needed, the manufacturer points out.

The Model 125NT requires 38 horsepower at the compressor shaft, operates at 1,800 rpm, and weighs 860 pounds. The Model 100IT requires 31 horsepower, operates at 1,960 rpm, and weighs 700 pounds.

Write to Atlas Copco, Inc., Dept. C&E, 545 Fifth Ave., New York, N. Y., or use the Request Card at page 18. Circle No. 90.

Shovel with new swing assembly

The newest addition to the Unit line of cranes and excavators is the Model 271-C, a one-yard shovel that reportedly converts easily to dragline, trench hoe, clamshell, or crane operation.

Among new features of this unit is the compact swing-circle gear assembly, with upper works mounted on a large-diameter, double live ring of steel balls running in hardened races. A friction-free, fast swing is said to result from this feature, and day-to-day maintenance and lubrication are said to be virtually eliminated.

Other features include a one-piece main machinery case, automatic traction brakes, straight in-line engine mounting, new Full-Vision cab, disk-type clutches, and involute-splined shafts in upper works and crawlers.

Write to Unit Crane & Shovel Co., Dept. C&E, 6411 W. Burnham St., Milwaukee 19, Wis., or use the Request Card at page 18. Circle No. 89.

Symons prefab forms were used throughout in the construction of a new motel on Ohio's Route 30, resulting in speed, efficiency, and quality of pour, according to the contractor, Ludwig Zahn Construction Co. Here, 4-foot panels are laid on stringers and tied together with a bolt and wedge in the center of each panel. No labyrinth of steel scaffolding was necessary to support the forms. For further information write to **Symons Clamp & Mfg. Co.**, Dept. C&E, 4249 W. Diversey Ave., Chicago 39, Ill., or use the card at page 18. Circle No. 57.

Portable steam cleaner has 120-gph capacity

A completely automatic, compact 120-gph steam cleaner is announced by Aeroil Products Co. The unit is called the Auto-Steam Model 121-C.

Either liquid or powdered chemicals can be heated and agitated in the cleaner's solution tank and metered to a desired mixture with the steam, according to the company.

Since no chemicals enter the pump or heater coils, the danger of clogging is eliminated, the manufacturer reports. Operating pressure is said to be reached in 2 minutes from a cold start.

The Model 121-C is supplied either on four rubber casters or mounted on a high-speed trailer. A special phosphating tank attachment is available.

For further information write to Aeroil Products Co., Inc., Dept. C&E, Wesley St., South Hackensack, N. J., or use the Request Card at page 18. Circle No. 16.

Offer larger engines on two power trowels

Larger engines on 24 and 29-inch power trowels have been announced by Muller Machinery Co. As standard equipment, 3-hp engines are furnished on either 3 or 4-blade models.

These trowels have an improved type of declutching mechanism that makes engagement of the blades easier and gives the operator complete control over the blade operation, according to the manufacturer. Another new feature is that the handle of the trowel is longer and adjusts to the height desired by the operator.

For further information write to Muller Machinery Co., Dept. C&E, Box 248, Metuchen, N. J., or use the card at page 18. Circle No. 29.

The voice of 18 years' experience says—

"THIS CEDARAPIDS G40A IS THE BE

Cedarapids Built by IOWA

IOWA MANUFACTURING COMPANY
Cedar Rapids, Iowa

IOWA MANUFACTURING COMPANY, Cedar Rapids, Iowa

Gentlemen: Please send the literature checked

☐ Bulletin AP-26 (Portable G-Unit Plants) ☐ Bituminous Pavers
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Name_____

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City_____ State_____

Send for these bulletins

Whether you need portable plants for jobs-on-the-move, or stationary plants for localized markets, these two bulletins contain valuable information about all Cedarapids batch-type models, including production-balanced accessory equipment.

For more facts, use coupon or Request Card at page 18 and circle No. 328

Bucyrus-Erie's new 210-B dragline-clamshell has a maximum bucket capacity of 10 yards.

New diesel-electric dragline-clamshell

A Model 210-B diesel-electric dragline and clamshell has been added to the Bucyrus-Erie line of heavy-duty crawler excavators. The new machine, with boom lengths of 100, 120, and 140 feet, can handle buckets up to 10 cubic yards.

Said to be designed for high production and low maintenance, the 210-B eliminates friction clutches for all cyclic functions. Hoist and drag or holding and closing motions are regulated by a static-type control of independent electric eddy current clutches, which are liquid-cooled by a radiator system. The swing motion is controlled by a variable Ward Leonard system.

Three sets of crawlers are available —standard, intermediate, and long-wide for soft ground conditions.

For further information write to Bucyrus-Erie Co., Sales Promotion Division, Dept. C&E, South Milwaukee, Wis., or use the Request Card at page 18. Circle No. 20.

THE BEST PLANT ON THE MARKET"

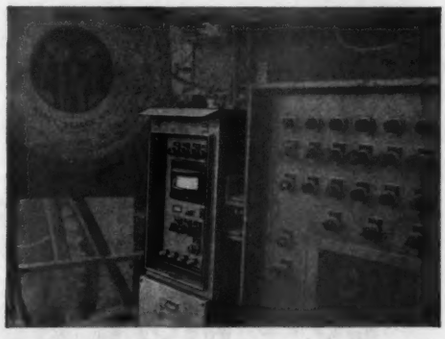
The voice is LYLE HARMON, Vice President
KINGSPORT ASPHALT CORP.
Kingsport, Tennessee

After 18 years in the bituminous mixing and paving business, the vice president of Kingsport Asphalt Corp. is well qualified to judge the comparative performance of asphalt plants. When Mr. Harmon calls his Cedarapids G40A "the best plant on the market" he knows what he's talking about. Mr. Harmon adds, "We find no bottlenecks with Cedarapids equipment. All components such as drier and dust collector are proportioned just right." On the job shown at the left, Kingsport's plant is mixing surface type 104 and binder to meet strict Tennessee state specifications and is producing an average 200 tons per hour.

For "best plant" performance, it will pay *you* to investigate the advantages of Cedarapids Bituminous Mixing Plants. They're packed with profit-benefits that reduce your cost per ton. Among these benefits are all-automatic controls, including new automatic burner controls, on the G-Unit and H-Unit models to speed operations and give you two or three extra batches per hour; a long, wide pugmill mixer with a spiral paddle pattern that assures faster mixing and handles larger batches; Cedarapids-Quality construction throughout to cut maintenance cost; and a complete line to meet every capacity requirement from 1500-lb. to 7500-lb. batches. Three G-Unit models are 100% portable and self-erecting. Six H-Unit sizes are stack-up models for stationary installation. Three sizes of continuous mix plants are also available.

Kingsport benefits with new automatic drier control system

To meet strict specifications, Kingsport insists on positive quality control through every production step. One of the most important control centers is the automatic drier burner control system which regulates burner firing to meet varying drying conditions and assures close temperature control of dried aggregate. And you save money and headaches! You get up to 10% fuel savings, eliminate possible human error, eliminate load rejections due to low temperature, and your burner man is free for other productive jobs.



Add a Cedarapids Paver for a high-profit "paving package"

For profitably laying the mix produced by your Cedarapids asphalt plant, use the machine that revolutionized the concept of bituminous paving. The Cedarapids Paver's unique design applies the principle of high frequency screed vibration to insure high speed laying of smooth, densely compacted mat free from voids or surface tears. Elimination of the old fashioned tamper bar reduces the number of moving parts to reduce maintenance requirements. High frequency vibration is only one of the many exclusive features which have led so many asphalt plant owners to complete their Paving Package with a Cedarapids Paver.

Corrugated aluminum culvert-sheet line

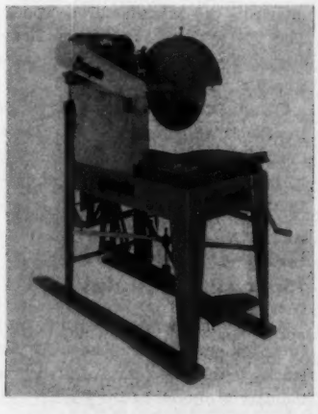
A line of corrugated aluminum culvert sheet has been introduced by Reynolds Metals Co.

The sheet, made from a special alloy said to be designed for maximum corrosion resistance, is available in gages of .060 to .135 inch and in sheet lengths from 28½ to 142½ inches. A .165-inch gage will be added later this year.

For further information write to Reynolds Metals Co., Dept. C&E, P. O. Box 2346, Richmond, Va., or use the Request Card at page 18. Circle No. 48.

New masonry saw permits easier head adjustment

Adjust-O-Matic is the name Champion Mfg. Co. has given its newest masonry saw. The cutting head on this new saw is moved up and down within a 10-inch range at the turn of a crank.



The manufacturer claims that this new saw permits faster and easier head-height adjustment than on other saws.

Available with a 1½, 2 or 3-hp fan-cooled electric motor, the saw comes with a 14 or 20-inch-capacity blade guard. Other features include a self-priming pump with a one-year warranty, 110/220-voltage selector switch, and a lock mechanism for jam cutting with diamond blades.

For further information write to the Champion Mfg. Co., Dept. C&E, 3700 Forest Park Ave., St. Louis 8, Mo., or use the Request Card at page 18. Circle No. 96.

Newest International tractor is the TD-15 (151 series) crawler, with 6-cylinder diesel and 6-speed full-reverse transmission.

Announce improved medium-duty crawler

The new International TD-15 (151 series) crawler tractor—intermediate model in the I-H line of crawlers—has been announced.

Powered by an International 6-cylinder D-554 diesel engine, the tractor develops 105 engine horsepower at 1,650 rpm. Drawbar horsepower is 85, and the unit has a 23,750-pound maximum drawbar pull with adequate weight and traction, according to the manufacturer.

The crawler features built-in, gasoline-conversion, push-button, all-weather starting of the 4-cycle valve-in-head engine. A full-reverse transmission, with six speeds forward and six in reverse, provides for easy, single-stick shifting. Forward speeds range from 1.5 to 5.9 mph, and reverse from 1.9 to 7.3 mph.

Dura-Rollers—six on each side—require lubrication only at 1,000-hour intervals, the manufacturer reports. The TD-15 (151 series) crawler is available with 74 and 62-inch-gage tracks.

For further information write to International Harvester Co., Dept. C&E, 180 N. Michigan Ave., Chicago 1, Ill., or use the Request Card at page 18. Circle No. 39.

Nylon-cord tire line for construction rigs

A line of heavy-duty nylon-cord tires for graders and virtually all trucks used in the heavy-construction industry is offered by the Harmo Tire & Rubber Co.

The Tri-State brand tires have two nylon-cord shock plies in addition to their normal 6 to 12-ply ratings. A wide selection of tread designs is offered.

The tires are available in sizes 600 × 16 to 1000 × 22, with ply ratings ranging from 6 to 12. Grader tires, with chevron tread design, are available in sizes 1300 and 1400 × 24 with 10-ply ratings.

For further information write to Harmo Tire & Rubber Co., Dept. C&E, 1800 W. Fort St., Detroit 16, Mich., or use the Request Card at page 18. Circle No. 33.

New replaceable tooth for trenching machines

A new replaceable, reversible trencher tooth has been added to the Pengo line of heavy-duty trencher teeth manufactured by Petersen Engineering Co.

The forged, heat-treated, alloy-steel tooth is designated as the No. 35 Wisdom Tooth. It is secured to the Pengo T35 adapter shank by means of a Rubber-Lock. This feature, according to the manufacturer, permits a free fit between tooth and shank, yet the compressed rubber locks the tooth securely. A hammer blow or two easily installs or removes the tooth. The T35 shank is reported to be easily welded to either chain or bucket-type diggers.

The streamlined shape of the No. 35 tooth and T35 shanks assure rapid penetration and minimum ground resistances for faster digging with less power, as well as less wear and tear on the machine, the company claims.

For further information write to Petersen Engineering Co., Inc., Dept. C&E, Box 330 A, Santa Clara, Calif., or use the Request Card at page 18. Circle No. 9.

Paving contractor's report on 873:

"Helped us get 25% more work in slack time"

Don Broughton, Springfield, Illinois, tells how a compact Barber-Greene 873 Finisher proved a king-sized profit maker by increasing business 25% for P. H. Broughton & Sons:

"The bulk of our asphalt paving contracts have always been on state highway jobs. And the slack time—between projects, on week-ends, even hold-ups while projects were in progress—was overhead we had reluctantly lived with as inherent in business.

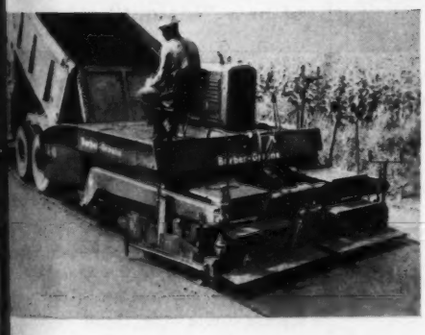
"But this amazingly versatile and highly able Model 873 is the machine that helped us vert slack time into 25% more business—doing types of paving jobs."

Contractors who have operated with the have found its compact design the economical swer to pave driveways, parking lots, city st etc. with highway quality surfaces.

These features make the 873 the most profit compact finisher: paves on crawlers to 50 f travels on pneumatic tires to 30 m.p.h.; bas paving width variable in 3" increments from 6- full-width tamping for maximum compaction travel width; automatic leveling; simple, po control with single "joystick" steering lever; draulic folding hopper; easy, accurate thick control; and fast crown adjustment while pa

Let your Barber-Greene Distributor show the 873's profit advantages—whether you are starting in business or are looking for paving eq ment that means extra business in slack time.

This complicated 1 to 5-foot-thick cantilevered concrete roof system of sloping planes and hyperbolic paraboloids is supported by Patent Trouble Saver sectional steel shoring supports. Made up of frames capable of supporting 10,000 pounds per leg, the shoring provides free-standing, level, safe units to meet varying heights. Adjustable screw legs are used top and bottom, with U-heads at top to receive stringers. The structure is a 5-bay, 52 × 167 × 50-foot-high Episcopal church in New Caanan, Conn. For further information write to **The Patent Scaffolding Co., Inc.**, Dept. C&E, 38-21 Twelfth St., Long Island City 1, N. Y., or use the Request Card at page 18. Circle No. 109.



NEW BARBER-GREENE SA-40 FINISHER HEADS NO. 1 FINISHER LINE

The newest star performer in the five-model Barber-Greene Finisher line lets you profit from all the latest advances in finisher design. Your distributor will show you all the exclusive features of this production king, service and maintenance miser, and new symbol of automatic operation and quality paving—the General Duty SA-40.

Whether you pave driveways or super highways or both, there is a Barber-Greene Finisher or Road Widener in a size and production range to deliver maximum economy and profitability for you.

World's No. 1 Manufacturer of Asphalt Paving Equipment

Representatives in Principal Cities of the World

Barber-Greene BG

Main Office and Plant AURORA, ILLINOIS, U. S. A.
Other Plants: DeKalb, Milwaukee, Detroit, Canada, England, Brazil, Australia

...VEYORS • LOADERS • DITCHERS • ASPHALT PAVING EQUIPMENT

For more facts, use Request Card at page 18 and circle No. 329

Concrete cylinder mold eliminates capping

Forney's, Inc., offers a new cylinder mold designed to eliminate capping procedures in the testing of concrete.

The horizontal cylinder mold is designed to produce test cylinders with perfectly square and plane ends, so that for quality control and detensioning purposes the entire capping procedure can be eliminated, the manufacturer reports.

Filled through the slot on top and rodded or vibrated in the usual manner, the mold has accurately machined end plates said to produce perfect ends on the specimen. When the end plates are knocked off, the barrel springs open enough to release the specimen.

For further information write to Forney's, Inc., Tester Division, Dept. C&E, P. O. Box 310, New Castle, Pa., or use the Request Card at page 18. Circle No. 23.

New abrasive blades cut green concrete

The Clipper Mfg. Co. has announced the addition of a new GC 3000 Series of reinforced break-resistant blades to its line of concrete-sawing abrasive blades.

The new blades are available in widths to make 3/16, ¼, ⅜, and 7/16-inch-wide cuts. Blade breakage is said to have been virtually eliminated by placing two layers of reinforcing through the center of the blade, then placing two additional layers of reinforcing at the hub where the strain is greatest.

For further information write to the Clipper Mfg. Co., Dept. C&E, Box 435, Kansas City 8, Mo., or use the Request Card at page 18. Circle No. 97.

KW-Dart Truck Co.'s 32-ton-capacity truck is an off-highway unit. Use of high-tensile-strength steel in the frame and body has kept the rig's weight down.

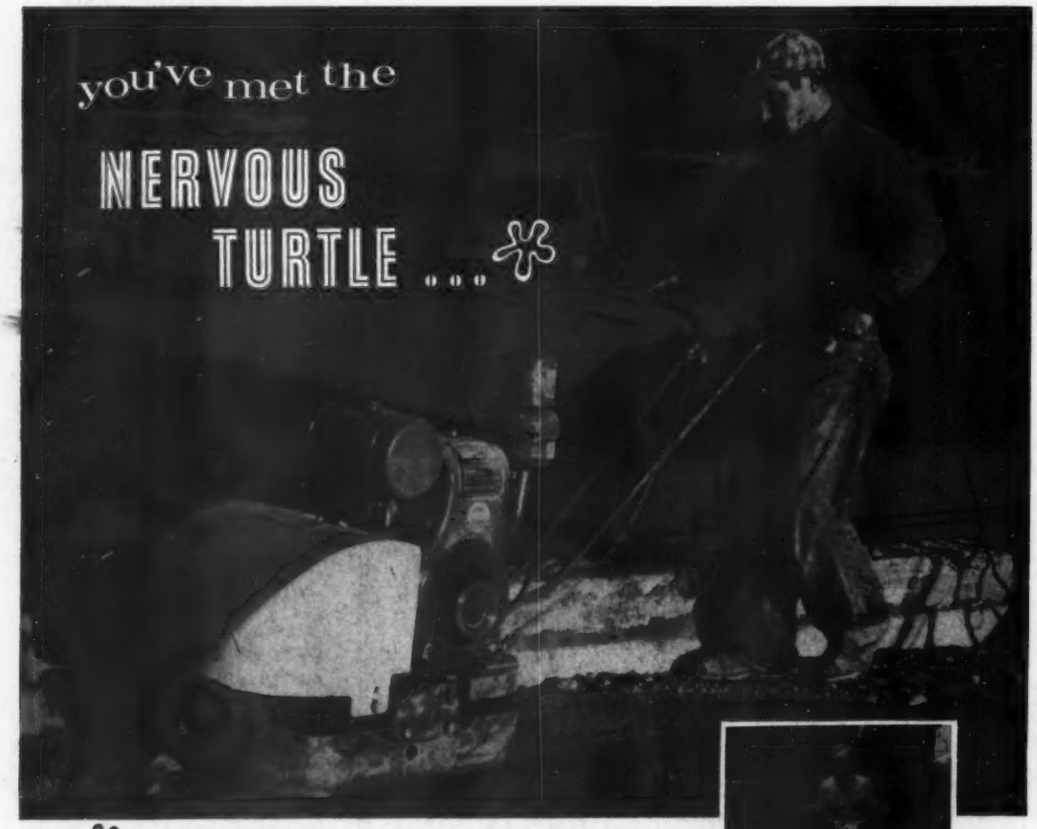
Lighter weight boosts new truck's payload

KW-Dart Truck Co. has announced production of its new Model 32S off-highway dump truck. High-tensile-strength steel has been used extensively throughout the body and frame of this new truck, reducing parasitic weight to a minimum, according to the manufacturer.

The truck reportedly will deliver 32 tons of payload on a short wheelbase, which makes it highly maneuverable.

Tires are 18.00 × 25, 24-ply all-around; the engine is a Cummins V8-350, 350-hp diesel; the unit-mounted heavy-duty transmission provides 10 speeds forward and two in reverse.

For further information write to KW-Dart Truck Co., Dept. C&E, 1301 N. Manchester Trafficway, Kansas City 20, Mo., or use the Request Card that is bound in at page 18. Circle No. 6.



*alias **TERRAPAC CM-20**

. . . only vibratory compactor that handles both clays and granular materials

Compaction at its best! You're sure of it every time when the "Nervous Turtle" does the work. This heavy-duty Terrapac CM-20 compactor simply jumps at chances to show its terrific ability on jobs other machines shy away from. Self-propelled for safe, easy one-man operation, the "Nervous Turtle" delivers a 6,600 lb. compaction wallop at a working speed up to 75 feet a minute. It handles all types of fill with ease and will penetrate up to 30 inches or more—depending on the material—in one or two passes. Ask your Vibro-Plus distributor to demonstrate a "Nervous Turtle" on your next job.

NO COMPARABLE MACHINES ON THE MARKET TODAY!

"Nervous Turtle" shown above, is ideal for work close to foundation walls, abutments, over pipe, etc.

Ad 41-7

VIBRO-PLUS TERRAPAC

VIBRO-PLUS PRODUCTS, Inc.

STANHOPE, NEW JERSEY

WORLD'S LEADING MANUFACTURER OF VIBRATORY EQUIPMENT FOR OVER TWO DECADES.

For more facts, use Request Card at page 18 and circle No. 330

New structural shapes in special alloy steel

The commercial production of rolled structural shapes made from quenched and tempered alloy steels has been announced by U. S. Steel Corp.

Heat-treated to design strengths as much as three times that of structural carbon steel, the new shapes are furnished in standard I-beams, channels, and angles, and in lengths up to 40 feet.

The company reports that the new shapes will eliminate the need for many contractors to cut quenched and tempered alloy steel plates and to weld their own structural sections.

In buildings, bridges, transmission and TV towers, and similar structures, the new shapes are expected to mean significant weight savings, not only in finished structures but also in terms of the tonnage of material shipped to the job site and handled during fabrication and erection.

For further information write to U. S. Steel Corp., Dept. C&E, 525 William Penn Place, Pittsburgh 30, Pa., or use the Request Card at page 18. Circle No. 30.

Quality control feature of new "instant" mortar

A new preblended mortar mix said to bring to the mason's trade the efficiencies, economies, and controls that ready-mix brought to the concrete industry has been introduced by the Instant Crete Corp.

The new product is said to make it practical for the first time to deliver to a construction site a blend that includes all the ingredients needed to make mortar. Known as Instant Crete, the blend combines cement, sand, lime, waterproofer, bonding chemicals, plasticity agents, and a variety of other ingredients. Only water need be added.

For large-scale users, the manufacturers will formulate custom blends designed for specific needs.

For further information write to the Instant Crete Corp., Dept. C&E, 1130 E. St. George Ave., Linden, N. J., or use the Request Card at page 18. Circle No. 98.

New, completely equipped asphalt maintenance rig

The Essick Patch Force unit, a specially built dump truck said to include all of the roadway or street maintenance equipment needed by a maintenance crew, is offered by the Essick Mfg. Co. With the Patch Force, a crew can do four to five times as many patches as with equipment now in general use, the manufacturer claims.

In addition to the 2-ton truck and dump body, the following Essick products are incorporated in the rig: a truck-mounted combination 200-gallon emulsion sprayer (heated or unheated); an air compressor of 45 or 58-cfm capacity; a 28-inch self-propelled, high-frequency vibrating roller; a one-man portable asphalt surface heater and LPG tank and hose; and a 60-gallon air-pressure-type water tank.

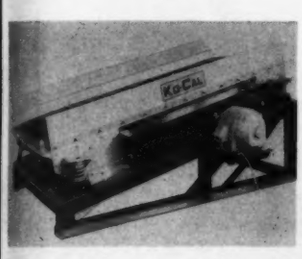
For further information write to Essick Mfg. Co., Dept. C&E, 1950 Santa Fe Ave., Los Angeles 21, Calif., or use the Request Card at page 18. Circle No. 43.

The Essick Patch Force maintenance rig is said to permit economical and efficient maintenance of asphalt surfaces.

New vibrating screen features twin shafts

A new vibrating screen that incorporates two shafts to provide screen pulsations has been announced by Koehring Co. of California. Called the Ko-Cal Twin-Shaft, the screen is available in three sizes: 4 × 8 feet, 4½ × 10 feet, and 5 × 14 feet.

The Twin-Shaft features a double eccentric shaft that, according to the manufacturer, produces a uniform pulsating action over the entire length of the screen, eliminates "pallop," and gives higher capacity.

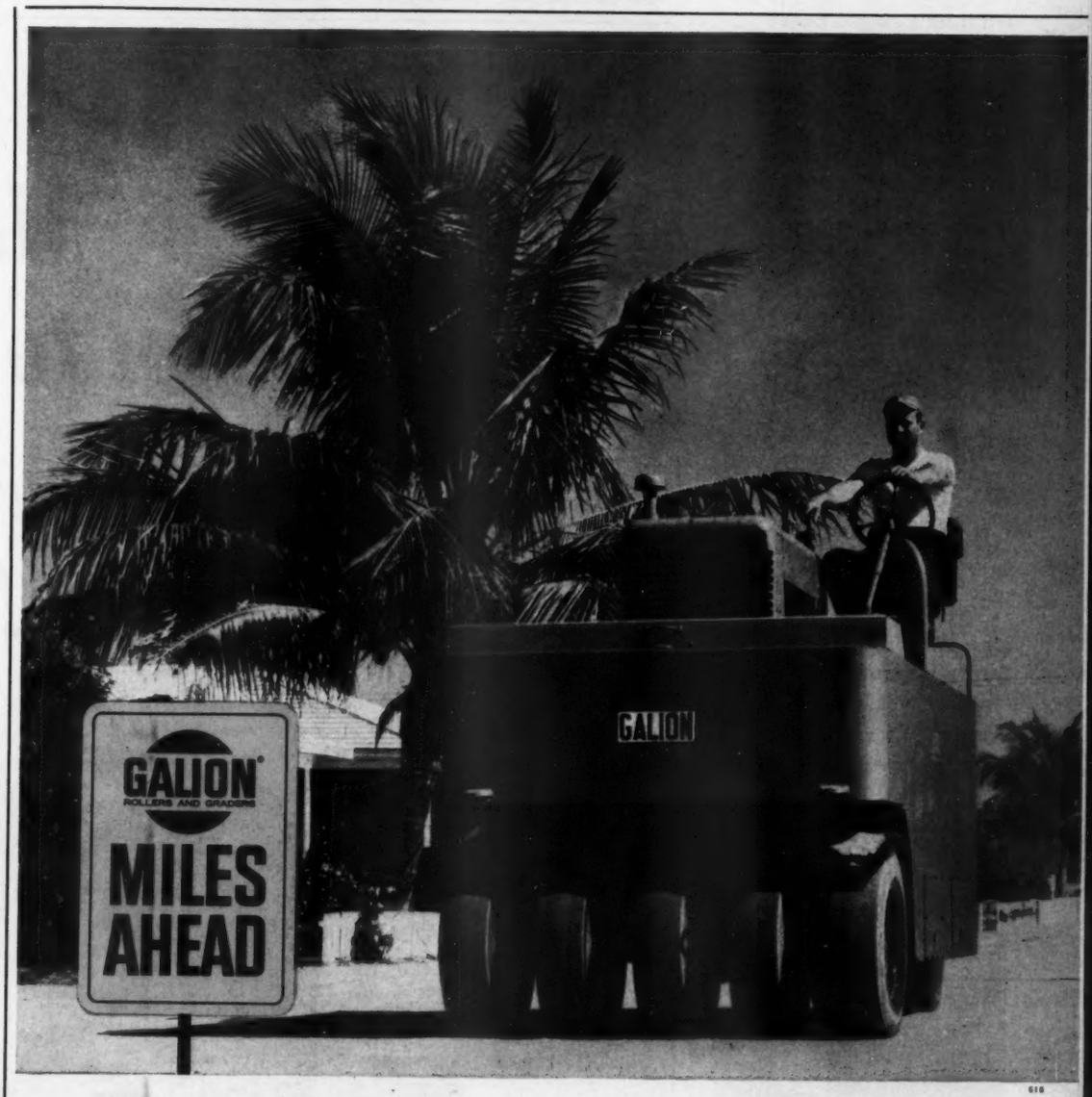


Koehring Co. of California offers this twin-shaft vibrating screen said to feature uniform pulsating action and higher capacity.

Other features described by the company include: screen cloth bolted to side plates to eliminate welding tensions that result in localized stresses and high maintenance; over-size positive drive belt to maintain timing of rotation of both shafts; all three belt sheaves eccentrically bored to counteract screen action, eliminate belt whip, and result in a smooth running screen; and a weight saving of 25 per cent over single-shaft designed screens.

For further information write to the Koehring Co. of California, Dept. C&E, 2200 Country Club Blvd., Stockton 4, Calif., or use the Request Card at page 18. Circle No. 126.

For more facts, use Request Card at page 18 and circle No. 331 ▶



Works faster, deeper where compacting is toughest

Works *faster* because only the Galion 9-Wheel Pneumatic Tire Roller has Equa-Matic front-end design with exclusive triple-point steering suspension. Automatic balancing action lets this heavyweight go surefooted over unlevel, irregular bases despite its exceptional compacting results . . . helps cut down on costly extra passes.

Works *deeper* because each of the five steering wheels is free to move in *four* directions, virtually "kneading" the surface. This way Galion overcomes bulging or "pyramiding" of base materials to save you valuable working hours. Up to 3000 lbs. wheel load provides highest compaction results.

When your job calls for fast, deep compaction over tough base materials, call in your Galion distributor. He will furnish full facts on the Galion Pneumatic Tire Roller. Or, send for data bulletin No. 434-A.

GALION® ROLLERS AND GRADERS

RENT A ROLLER
Ask your Galion distributor about our cost-cutting Rent-A-Roller Plan

THE GALION IRON WORKS & MFG. COMPANY, GALION, OHIO, U.S.A.

General and Export Offices, Galion, Ohio, U.S.A.—Cable Address, GALIONIRON, Galion, Ohio

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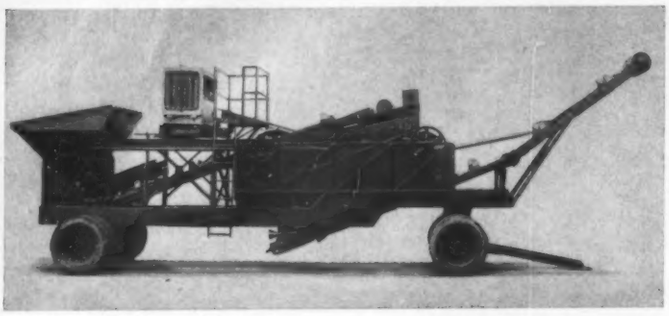


The new Pioneer No. 8 single-pass crushing plant is said to meet all highway axle-load and travel-width requirements.

Offer new single-pass portable crushing plant

A compact, low-cost, single-pass crushing plant designed for county and municipal road work and for contractor use on smaller projects is announced by Pioneer Engineering.

The Pioneer No. 8 plant has 18 square feet of scalping screen mounted ahead of the jaw, another 18 square feet for volume sand removal, and a 1036-size jaw crusher.

The new plant can be fed by power shovel, clamshell, dragline, or from a ramp with a dozer. Baffles are provided in the screen hopper to allow fines to be removed or blended back into the pay product in any desired percentage.

For further information write to Pioneer Engineering, division of Poor & Co., Inc., Dept. C&E, 3200 Como Ave., S.E., Minneapolis 14, Minn., or use the Request Card at page 18. Circle No. 41.

New 225-amp arc welder for maintenance jobs

The Lincoln Electric Co. announces a new 225-amp ac transformer-type arc welder for general maintenance welding. The new unit is said to offer increased output capacity and an electrode section formerly available only in larger models.

The new model, the company states, fills the need for welder performance

between high-capacity production welding equipment and small, 180-amp shop machines.

The dial-type current control of the new welder provides quick adjustment and positive setting of the welder over an amperage range from 40 to 225. Electrodes from the smallest to 3/16-inch diameter reportedly can be used for materials of any thickness.

For further information write to The Lincoln Electric Co., Dept. C&E, Box 3115, Cleveland 17, Ohio, or use the card at page 18. Circle No. 38.

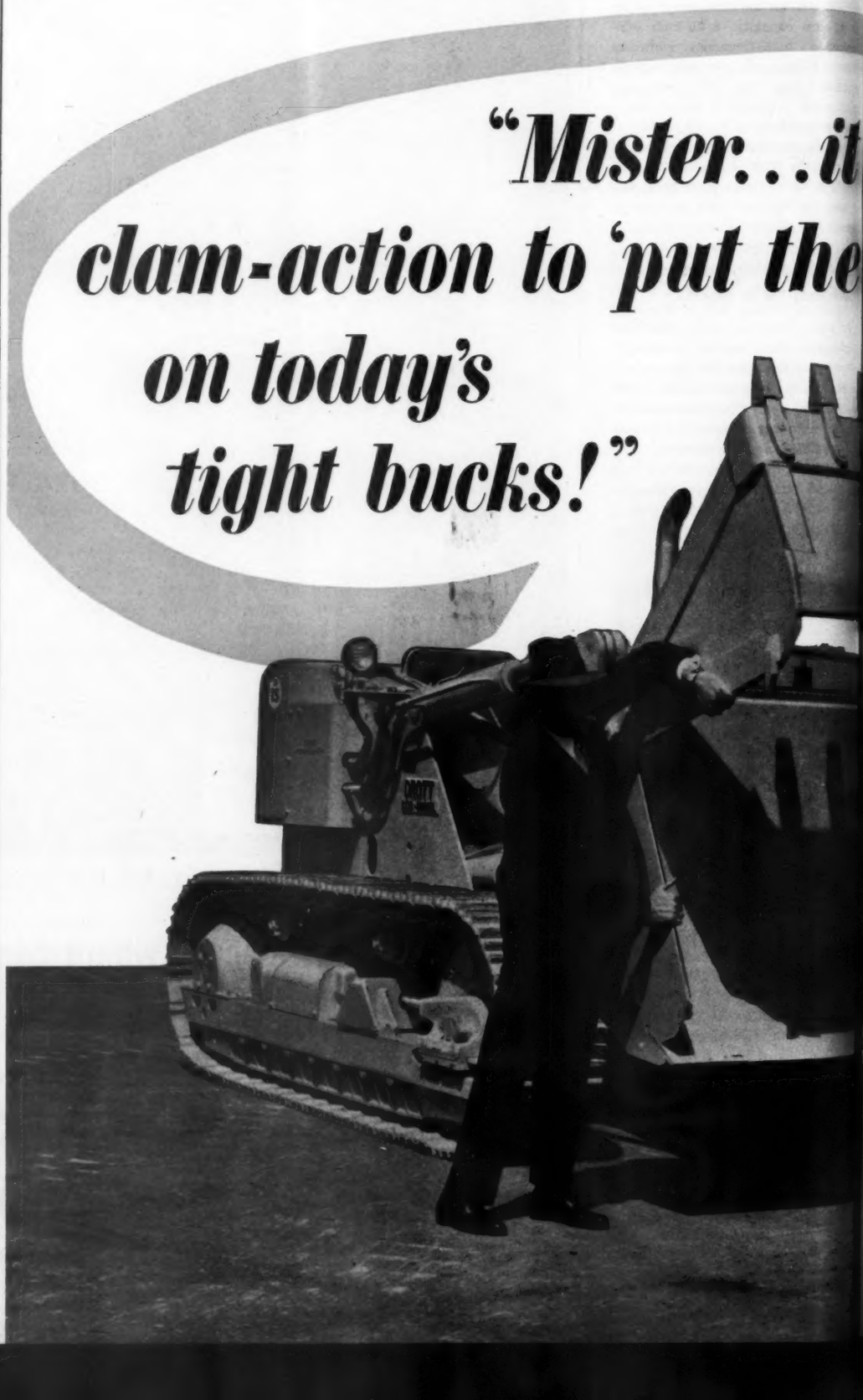
New footing brackets speed forming operation

A new, all-metal footing bracket featuring fast adjustment and resetting is said to permit forming for footings in half the time and at half the cost required by conventional forming materials and methods.

The Engineered Concrete Form brackets allow for depth adjustments of 4 to 12 inches, and adjust to all widths from 4 to 36 inches, straight or battered sides. Rapid vertical adjustment is made possible with a

single spring-lock adjustment on each end of the strut, according to the manufacturer. Steel stakes fit snugly into a patented locking device

"Mister...it takes clam-action to 'put the bite on today's tight bucks!"



to provide in-line footings.

There is no need to knock down for resetting; both sides of the assembly remain fixed to the bracket for both stripping and setting. No nails are needed in assembly of footing forms when the brackets are used, and no disassembly of forms is necessary when stripping, the company reports.

For further information write to the Engineered Concrete Form Corp., Dept. C&E, 7658 S. Wentworth Ave., Chicago 20, Ill., or use the Request Card at page 18. Circle No. 127.

New vibratory tamper has 3,600-lb. impact

A compact and reportedly more efficient vibratory tamper is announced by Vibro-Plus Products, Inc. Known as the Dynapac CM-10, the new rig is said to travel at speeds up to 90 fpm and to climb grades.

A conveniently placed throttle lever provides the operator with effective control over all speeds, according to the manufacturer. A centrifugal clutch enables the CM-10 to idle in place and reportedly makes starting easier. A newly designed vibration-free handle is said to reduce operator fatigue.

The Dynapac Model CM-10.

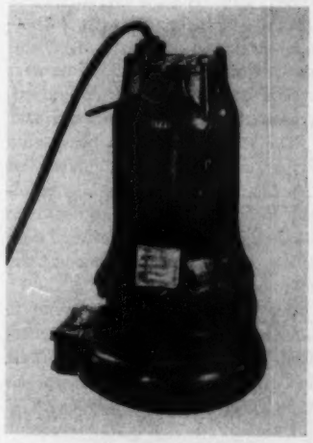
The Model CM-10 weighs 290 pounds, has an impact of 3,600 pounds at 4,500 vpm, and has an adjustable frequency up to 4,500 vpm.

For further information write to Vibro-Plus Products, Inc., Dept. C&E, Stanhope, N. J., or use the Request Card at page 18. Circle No. 50.

Submersible sludge pump for slurries, muddy water

An electrical, fully submersible 4-inch pump for handling sludge and slurries, liquids, and muddy water containing silt, weeds, etc., has been developed by Flygt Corp.

The Flygt CS-100, which consists of a pump unit and a 220/440 or 550-volt electric motor in an aluminum housing, is placed directly in the water to be pumped, the motor being sealed in a watertight compartment. A minimum of supervision is required, and the pump is not damaged if it runs dry, the manufacturer reports.



For further information write to the Flygt Corp., Dept. C&E, Hoosick Falls, N. Y., or use the Request Card at page 18. Circle No. 128.

Hydraulic load cell for dynamometers

A new hydraulic load cell designed for use with a dynamometer to measure tension or compression loads is announced by The A. H. Emery Co.

The Type ADR-1 cell is essentially a piston-cylinder assembly in which the compression load on the cell is exerted through the piston on a film of oil. A long-stroke molded diaphragm is used to provide a leakproof pressure seal. The output hydraulic pressure of the cell is directly proportional to applied load.

In use with a dynamometer, the cell is equipped with a strut bolted to the piston part of the cell. The strut is then attached to the torque arm of the dynamometer, and torque is measured in either direction of rotation.

For further information write The A. H. Emery Co., Dept. C&E, Pine St., New Canaan, Conn., or use the Request Card at page 18. Circle No. 12.

...it takes
...he bite'

"15 minutes on this new '15' Four-in-One will prove you can't afford to own any limited-duty bucket!"

"Sure, a racehorse loader with a 'lock-jawed' bucket may gain you a few minutes a day—just dipping from a stockpile and dumping in a truck!

"But anywhere else we double-challenge you to stack any limited-duty loader against a new '15' clam-action 4-in-1, and see what happens. We can tell you right now what'll happen no matter what size, shape or color the single-action rig is, or how shifty it is! It'll get clobbered! And, profitwise, so will the guy who buys the obsolete bucket without bothering to find out what a slew of jobs the new '15' Four-in-One does.

"You can get the straight dope, first hand in 15 minutes, on this new TD-15 Four-in-One. In just one quarter-hour, you can prove what it means to own the one and only machine that doubles for a whole spread of contracting equipment—at the touch of a hydraulic lever.

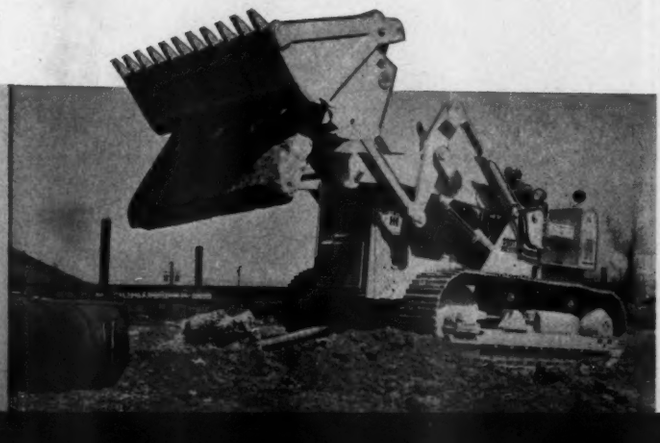
"In only 15 minutes, you can put the 'bucket with the bite' through its paces. Prove how you get four, or a dozen, or more, full-sized, full-capacity machine actions with the exclusive 4-in-1. Prove you get hundreds of job-handling working positions with each action.

"See how new TD-15 Four-in-One get-up-and-go is tailored to set a fast work pace, with the single-stick shift, full-reverse transmission, and plenty of hydraulic control power.

"C'mon in now—take 15 minutes on a new '15' Four-in-One. Or call us for a demonstration on your job. See for yourself why you can't afford to own any obsolete 'lock-jawed' loader."

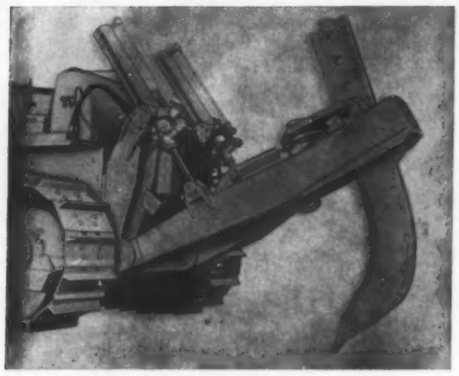
International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL®
DROTT®



"Doze, grade, grab, spread, do cut-and-fill work, strip, load sticky materials, outshovel a power shovel, pick up loose materials (without chasing them), grub, load 'impossibles.' Do dozens of other profitable jobs with the new '15' Four-in-One that single-action loaders can't touch."

◀ For more facts, use Request Card at page 18 and circle No. 332



The improved Kelley D9C ripper is a more compact, lighter-weight unit.

Offer improved model of heavy-duty ripper

Improvements in the design of the Kelley D9 Model C ripper are said to greatly increase the service life of the ripper, while reducing operating costs. The use of higher-strength, higher-alloy steels has produced a more compact, lighter-weight unit, while wear resistance has been substantially increased, the manufacturer reports.

The Kelley D9C extra-heavy-duty ripper, integrally mounted on the Cat D9 tractor, can rip almost any material including solid rock to depths of 34 inches, the company claims. Both single and triple-shank models are offered.

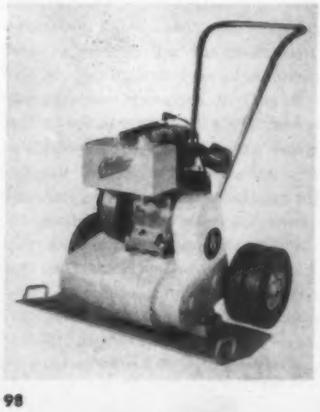
For further information write to Kelley Products, division of Crutcher-Rolfs-Cummings, Inc., Dept. C&E, P. O. Box 2073, Houston, Texas, or use the card at page 18. Circle No. 28.

Heavy-duty power tamper for close-quarter work

Between 10,000 and 11,000 square feet of earth backfill reportedly can be tamped in an hour by the Kelley 36KT power tamper, manufactured by the Kelley Machine Division. The new unit is powered by a 5.4 gasoline engine, and can be equipped with either a 30 or 36-inch-wide shoe.

The 36KT is described by the manufacturer as a heavy-duty power tamper with massive eccentric-loaded rotors for work next to foundations and walls; around culverts, piling, and piers; in pipeline trenches; and on subbases for road-widening jobs.

For further information write to the Wiesner-Rapp Co., Kelley Machine Division, Dept. C&E, 285 Chicago St., Buffalo 4, N. Y., or use the card at page 18. Circle No. 129.

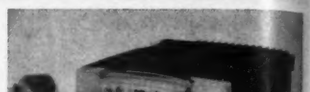


A new Motorola development said to suppress vehicle ignition-noise interference is featured in the company's transistorized Motrac radio line.

Ignition-noise suppressor for 2-way mobile radio

A means of suppressing ignition-noise interference caused by vehicle electrical systems has been developed by Motorola for extending the operating range of contractors' 2-way radio systems and providing more reliable reception in heavy traffic areas.

The new device is available on



models of Motorola's transistorized Motrac low-band (25–50 mc) mobile radio line. Known as Extender operation, the device is said to eliminate impulse interference from the radio-equipped vehicle and all other vehicles in the vicinity. An interfer-

Take 15 minutes on

Prove New International TD-15 cost-cuttin capacity tops the 100 hp class

Advantages in heavy-duty hp and in working speeds give the new TD-15 extra work capacity to cut costs, boost earnings — as compared to competitive rigs. *You can prove it, positively.* Advances in strength, wear-resistance, temperature control, and operating ease mean big gains in component life, upkeep economy and machine availability to ow of new International TD-15's. *You can pro beyond doubt, without risk.* Let your Internati Construction Equipment Distributor give you revealing 15-minute new "15" demonstration,

Prove new TD-15 capacity dozing heavy materials

Fast, easy new TD-15 shifting saves effort, increases output. Size up the new "15's six-speed, full-reverse transmission with speeds spaced to use extra power and often work a speed faster than competitive rigs. See how the six speeds forward, six reverse, are arranged for easy short-travel, single-stick shifting. Change forward-reverse direction fast with the "Shuttle-Bar." Check the power-transfer efficiency and operating ease of the new "15's heat-defying, dry-type sintered metal engine clutch!

Give the new "15" a steady job of bulldozing solid ma Advances like tapered, anti-friction bearings of greatly inc capacity — heavier shafts and deeper, stronger gear teeth — thousands of hours to transmission component life. New tra oil pump circulates and filters lubricant for longer gear life. M the added economy of features like the new sintered metal clutch discs which outlast previous type even while handling torque loads!

International Harvester Co.,
180 North Michigan Ave., Chicago 1, Ill.
A COMPLETE POWER PACKAGE

International® *Construction Equipment*

ence-causing impulse is generated each time a single spark plug fires.

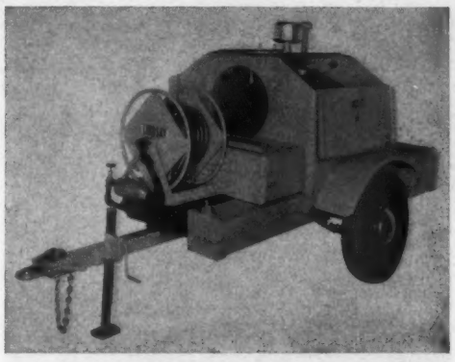
Ignition noises are automatically detected in the early stages of the radio receiver. The device effectively increases radio coverage area by knocking out ignition-noise interference that would ordinarily override the message in a weak signal area, the manufacturer reports.

For further information write to Motorola, Inc., Communications Division, Dept. C&E, 4501 W. Augusta Blvd., Chicago 51, Ill., or use the card at page 18. Circle No. 27.

Offer redesigned line of radial compressors

P. K. Lindsay Co. has announced a redeveloped line of radial-type air compressors. Models from 30 to 125-cfm capacity have been redesigned to provide greater portability, more ease of servicing, and 12-volt starting systems.

These Lindsay air compressors are all of direct-drive design, and are equipped with Wisconsin air-cooled, 4-cylinder engines. They may be moved by one man or towed at regular automobile speeds. Other features include an adjustable speed governor and automatic unloading with engine slowdown.



The Lindsay line of radial-type air compressors has been redesigned for greater portability and easier maintenance.

For further information write to P. K. Lindsay Co., Inc., Dept. C&E, 97 Tileston St., Everett 49, Mass., or use the Request Card at page 18. Circle No. 55.

Automatic control system for batching operations

Jackson Vibrators, Inc., announces the all-new Jackson Millermatic, a completely automatic control system for asphalt and concrete batching plants.

A single push button controls all weighing, mixing, and loading operations through a cycle of from 1 to 19 batches, including up to six components. A remote-control button permits the operator to work away from the batching deck. In addition to fully automatic operation, the system permits semiautomatic or fully manual push-button operation.

The Jackson Millermatic automatic control system is said to assure accuracy of mix in both asphalt and concrete batching plants.

Accuracy of mix, well within specified tolerances, is said to be assured by the Millermatic, because the batching operation is automatically stopped if there is any error in weighing, and continues only after manual correction has been made. Correction reportedly is simplified because panel lights indicate the point in the cycle where underweight occurred.

For further information write Jackson Vibrators, Inc., Dept. C&E, S. Jackson Rd., Ludington, Mich., or use the Request Card at page 18. Circle No. 26.

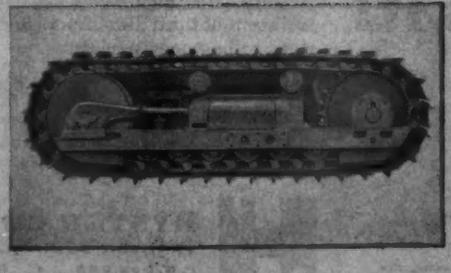
are hp and performance protection!

the new TD-15's 6-cylinder engine push-button easy — et the seconds-fast warm-up which only International's famous e-conversion starting provides. Note that *full load* for the new s an overload for other rigs of the 100-hp class. See how the pressure-type cooling teams with the larger capacity radiator give positive temperature control in hottest weather at full y 'round the clock.

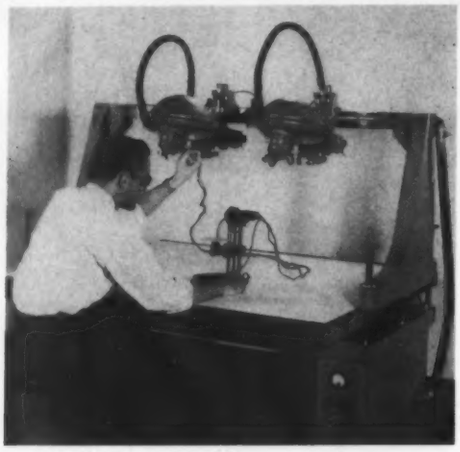
of the "15's" new dry-type air cleaner. It's 99.8% t — and 100% convenient! Handy, underhood mounting ransparent, quick-dump collector greatly simplify servicing. tional even provides a dash indicator that shows red when l needs servicing!

new "15's" undercarriage strength!

along with precision-welded double-box-beam TD-15 rames is the added strength of drum-type front idlers — the protection of frame-welded track chain guides — the added life of self-cleaning, power-saving strutless track links. The 15" is the only crawler of its power class with the shock-load tion of ball-joint suspension — basic in International's famous t track mounting design! Improved, high-efficiency full-floating rotect the long life Dura-Rollers — the track rollers you grease ce per hundred 10-hr. shifts!



For more facts, use Request Card at page 18 and circle No. 333



The new Bausch & Lomb Balplex 120 mapping projector is a precise yet rugged unit for use in the field, as well as in permanent office headquarters.

New mapping projector for use in office, field

A 120-degree mapping projector, reputedly the first to be designed and built in this country, has been announced by Bausch & Lomb. In addition to low price, as compared to imported models, features of the new Balplex 120 include portability, so that the machine may be used either in headquarters or mobile field units, and high-quality precision optics protected by durable mountings.

The Balplex 120 is said to have widespread use in both public and private construction and engineering for producing highly precise topographical maps.

According to the manufacturer, the 120-degree aerial camera lens, developed in Europe, has made it possible for greater area coverage to be obtained in a single photo taken from the survey aircraft, cutting down on the number of flights over a particular region. The Balplex projectors are said to permit production of topographical maps from the aerial pictures with increased accuracy, economy of processing, and field coverage.

Mobility is stressed as an outstanding feature of the new unit. One or more pairs of the projectors can be shifted from permanent headquarters, quickly set up in special field vehicles, and the entire map-making unit moved around for use in several areas. The precise optics are said to be unaffected by vibrations during transportation.

For further information write to Bausch & Lomb, Inc., Dept. C&E, 626 St. Paul St., Rochester 2, N. Y., or use the Request Card at page 18. Circle No. 130.

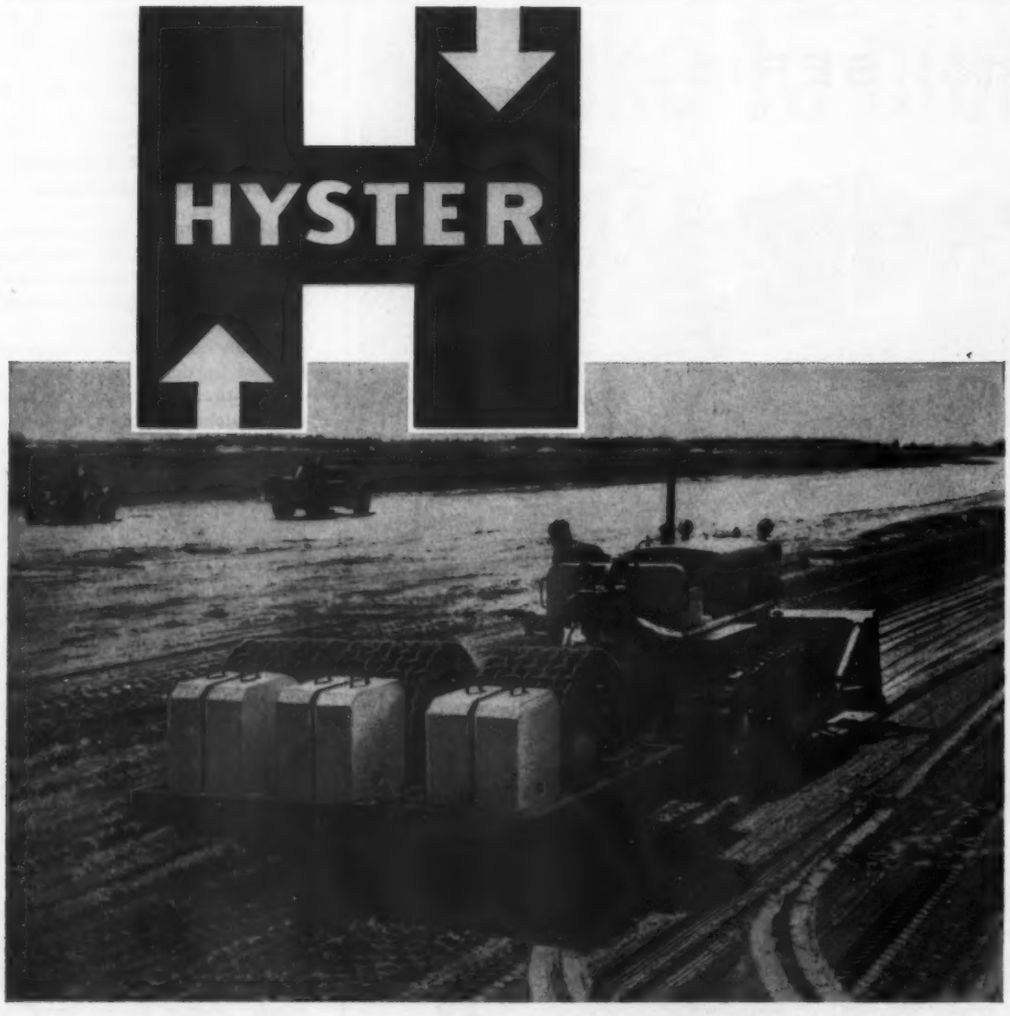
Two-way radio units for low-frequency band

New 50-watt power-output Transicom 2-way mobile radio units for use in the 25 to 54-megacycle band are announced by the Mobile Communications Department of the Allen B. Du Mont Laboratories. A 25-watt version for use in the same frequencies has also been announced.

The Transicom line of 2-way mobile radio equipment is now available in four different versions to meet power and range requirements of the user in both the 25–54 and 144–174 megacycle bands.

All four units are described as super-compact for under-the-dash mounting, and contain special 3 × 5-inch integrated speakers with audio directed to the driver's ear. Optional features are dual-frequency transmitters and coded squelch. Weight of the Transicom units is only 14 pounds, and the transmitter/receiver unit is 4¼ inches high, 8⅜ inches wide, and 12 inches deep.

For further information write to Allen B. Du Mont Laboratories, Mobile Communications Department, Dept. C&E, 750 Bloomfield Ave., Clifton, N. J., or use the Request Card at page 18. Circle No. 131.



New
Another Compaction Development
HYSTER® has it!

New Hyster three-drum Model D "Grid" and Tamping rollers cover 10 feet at a pass—increase production—reduce costs.

Two-drum units already in the field are easily converted to three-drum machines—hinge attachment of third drum frame prevents bridging when rolling uneven surfaces.

Call your Caterpillar-Hyster dealer for more details.

Hyster, "Grid" are registered trademarks of Hyster Company.

TRACTOR EQUIPMENT DIVISION—Construction and logging equipment
INDUSTRIAL TRUCK DIVISION—Lift trucks, mobile cranes, straddle carriers
MARTIN TRAILER DIVISION—Heavy machinery hauling trailers
INTERNATIONAL DIVISION—Overseas manufacturing, sales and service
Factories: Portland, Oregon (Home Office) • Danville, Ill. • Peoria, Ill. • Kewanee, Ill. • Nijmegen, The Netherlands • Glasgow, Scotland • Sao Paulo, Brazil • Sydney, Australia (Licensee)

HYSTER COMPANY
TRACTOR EQUIPMENT DIVISION
P. O. Box 328 • Peoria, Illinois

For more facts, use Request Card at page 18 and circle No. 334

Faster self-priming feature of new pumps

Faster self-priming, increased capacities and pressures, and advanced hydraulic design are said to be features of the new 5 and 7 Series centrifugal pumps offered by Barnes Mfg. Co.

The new 1½ and 2-inch self-priming pumps are reported to be particularly suited for contractor use, being light for portability yet tough enough to operate continuously at peak capacity and pressure. The manufacturer claims pressure characteristics of 2,400 gph at 95 feet of head and 40 psi, plus high-speed priming in only 16 seconds.

The maintenance and service of these pumps in the field is said to be simple and fast. The volute is removable and easy to replace, eliminating the need for a wear plate, according to the manufacturer. Quick and easy accessibility to the pump interior—volute, impeller, and seal—is accomplished by removing just three nuts. The new pump bodies are made of aluminum or cast iron.

For further information write to the Barnes Mfg. Co., Dept. C&E, 651 N. Main St., Mansfield, Ohio, or use the Request Card at page 18. Circle No. 132.

New hardfacing electrode has high deposition rate

Equipment with surfaces subjected to metal-to-metal frictional wear or severe earth scouring under low stress conditions can be given maximum wear-surface protection with a new hardsurfacing electrode, according to The McKay Co.

McKay Hardalloy 48 is described as an iron-powder, low-hydrogen hardsurfacing electrode with deposition rates 50 per cent higher than conventional coated electrodes. The surface of the weld bead is said to be very smooth, minimizing frictional resistance.

Hardalloy 48 operates on either ac or dc reverse polarity with a quiet, stable arc and fast transfer, the company reports. Deposits are reported to be sound, exceptionally smooth, and covered with an easy-to-remove slag. The electrodes are supplied in ⅛, 5/32 and 3/16-inch sizes in standard 14-inch lengths.

For further information write to The McKay Co., Dept. C&E, 493 McKay Bldg., Pittsburgh 22, Pa., or use the Request Card at page 18. Circle No. 21.

New hardware items in concrete-form line

Kwik-Lock Forms Co. announces the addition of two new products to its line of concrete forms and accessories.

A new metal corner form features overlapping flanges on both sides. A 4-inch flange on the closing side has been designed to eliminate the use of lumber fillers. A 1-inch flange on the opposite side is added so that the hook-type clamp is capable of pulling both flanges inward to the panels, preventing twisting action, the manufacturer claims.

A new clamping bracket added to the existing line of wales is said to enable contractors to convert existing panels for use with Kwik-Lock clamps for $2.50 per panel.

For further information write to Kwik-Lock Forms Co., Dept. C&E, 18100 Rialto, Melvindale, Mich., or use the Request Card at page 18. Circle No. 46.

This new metal corner form is an addition to Kwik-Lock Forms' line of concrete forms and accessories.

dig, swing, dump...swing and move up...dig, swing, dump... smooth...non-stop with the 1¼ yd. P&H hoe

$10,500 worth of bonus *extras* as *standard equipment* speed up the complete work cycle

By the hour, by the day, and by the job, the 1¼ yard P&H hoe goes through the complete work cycle faster than any machine in its class. Much of this speed is due to one P&H bonus extra worth a minimum of $3,500 . . . exclusive Magnetorque swing. It makes swings faster, smoother . . . you can crowd the side of the trench all you want . . . there is no trouble, no adjustments. You can't get Magnetorque swingers on any other make of machine. If you could, it would cost you at least $3,500 extra!

There are other P&H bonus extras in this "525":

- Independent propel and automatic propel brakes that allow the operator to move up while he's swinging . . . saves a lot of time.
- tractor-type crawlers mean smooth, easy rolling—less power-wasting friction—less wear . . . little maintenance.
- P&H Power Box design with all vital gears running in an oil bath, completely sealing out dirt and abrasives and requiring only one oil change a year.
- three-speed transmission provides low and high range plus normal operating speed.

When you need even more capacity and extra stability, you can specify the "535"—the *long crawler* model with a lifting capacity of 35 tons . . . or the "550" . . . the *wide long crawler* rig for 50-ton lifts.

Climb aboard this machine and *feel* the difference. At the same time, your P&H dealer can give you the complete facts on how you get $10,500 worth of bonus extras. Call him today. Or, write for descriptive literature X-303.

HARNISCHFEGER P&H
Milwaukee 46, Wisconsin

For more facts, use Request Card at page 18 and circle No. 335

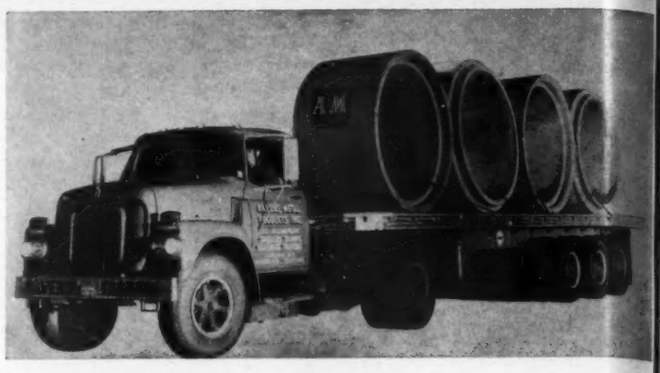
Offer tri-axle, aluminum flat-bed trailer

A new flat-bed trailer that combines an all-aluminum frame with tri-axle construction is announced by Ravens-Metal Products, Inc.

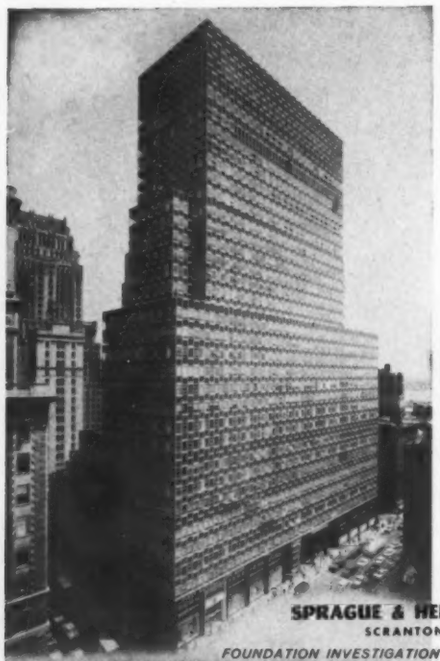
The new hauling unit is said to extend payload by 40 per cent over conventional tandem steel units, and up to 22 per cent over aluminum tandem flat-beds now available. According to the manufacturer, the increased payload is due to the all-aluminum fabricated frame, which is 50 per cent lighter than steel frames, and the tri-axle suspension with six wheels, which allows an extra 15,750 pounds gross.

The standard flat-bed is 35 feet long and 8 feet wide, although construction of the frame is such that any length or width can be supplied.

For further information write to Ravens-Metal Products, Inc., Dept. C&E, 1300 Market St., Parkersburg, W. Va., or use the Request Card that is bound in at page 18 of this issue. Circle No. 173.



The new Ravens flat-bed trailer is said to greatly increase payload capacity because of its aluminum construction and tri-axle design.



ANOTHER S&H FOUNDATION INVESTIGATION PROJECT

NO. 2 BROADWAY NEW YORK

SPRAGUE & HENWOOD, Inc. S&H
SCRANTON 2, PA.

FOUNDATION INVESTIGATION • MINERAL EXPLORATION
PRESSURE GROUTING • MASONRY DIAMOND DRILLING

New York—Philadelphia—Nashville—Pittsburgh—Tucson—Grand Junction, Colo.—Buchans, Nfld.

For more facts, use Request Card at page 18 and circle No. 336

Dual-purpose tie for concrete forms

A new, dual-purpose tie adaptable for use with Simplex-Waco wood forms or other forms with steel frames is manufactured by Simplex Industrial Forms, Inc.

The new tie is a stripped, quality-controlled steel bar that can be easily slipped into place from the outside of the forms, the company reports. Twin slots are placed outside the break back, thus permitting the tie to be used in combination with wood and metal-framed forms opposite each other. Embossing centered on the break-back notches helps secure the tie and form a solid bond.

Simplex-Waco ties are reported to be able to withstand live loads of 3,000 pounds. They are available in any size required, including fractional sizes.

For further information write to Simplex Industrial Forms, Inc., Dept. C&E, 5605 Industrial Ave., Rockford (Loves Park), Ill., or use the Request Card at page 18. Circle No. 5.

INSLEY

CONCRETE EQUIPMENT

ROUND-TYPE BUCKETS

Grout-tight gate—complete control at any stage of discharge—center dump prevents spillage, assures accurate placement—easy-to-reach lever lets operator watch pouring—½ to 3 cubic yard capacities—narrow or square gate.

READYMIX RECEIVING BUCKETS

Automatically balances itself when picked up—narrow radial gate for accurate placement—grout-tight gate—ideally suited for columns or exterior walls—½ to 3 cu. yd. capacities.

ROCKER DUMP HAND CARTS

Pneumatic tires and anti-friction bearings—rocker arms provide clean dumping and protection against rolling while dumping—smooth all-welded tray, heavily reinforced—stub axle frame welded integrally with tray.

FLOOR HOPPERS

Compact—fast, easy-operating gate—handles stiffer concrete—45° valley slope—straight sides with rounded corners—welded frame—30.7 to 61.2 cu. ft. capacities.

For dependability, for durability, count on Insley's many years of experience in manufacturing concrete equipment. See your Insley dealer or write direct to

INSLEY MANUFACTURING CORP.
P.O. Box 167 • Indianapolis 6, Indiana

For more facts, circle No. 338

BUILD HIGHWAYS THE ROME WAY

MIXING AND BLENDING. Rome Model TRCH 10-36 Hinge Type Offset Disk Plowing Harrow cuts up to 13" deep for low cost mixing, blending, bonding lifts.

AERATING. Rome Model TRH 20-30 Hinge Type Offset weighs over 9,000 lbs.—heavy duty construction for less maintenance, longer life.

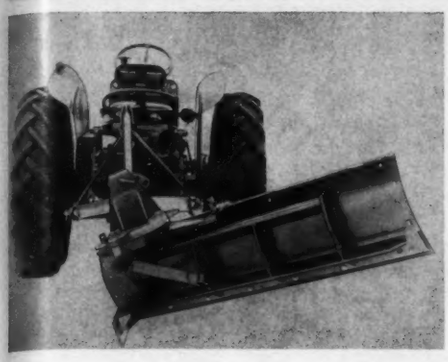
PULVERIZING AND LEVELING. Rome Model TCW 40-24 Wheel Type Offset cuts 15' wide—has rubber tire transport for easy turns, transport, accurate depth control.

TOUGH, VERSATILE AND MONEY SAVING. Rome Disk Plowing Harrows are available in many sizes and types. For aerating, mixing, scarifying, pulverizing—there's a ROME for your job, your equipment. See your Rome-Caterpillar dealer.

ROME®

ROME PLOW COMPANY
Cedartown, Georgia

For more facts, use Request Card at page 18 and circle No. 337



The Arps Model AB-12 utility blade offers both wide versatility and heavy-duty capacity.

Tractor utility blade is heavy-duty model

Demand for a rugged, heavy-duty utility blade in the popular-price field is met with the versatility of the Model AB-12 tractor-mounted blade, according to the Arps Corp.

The AB-12 offers a choice of five tilt and four pitch adjustments, seven angular positions (forward) and three angular positions (reverse), and offsets 15 inches to the left or right for close work near fences or buildings.

The new blade weighs 428 pounds —at least 100 pounds more than any other blade in its class, according to the manufacturer. This feature is said to give it heavy-duty capability.

For further information write to the Arps Corp., Dept. C&E, New Holstein, Wis., or use the Request Card at page 18. Circle No. 25.

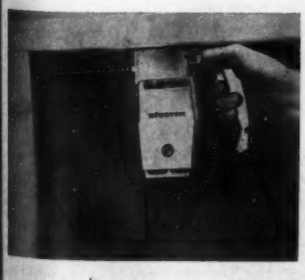
New drill features ease of operation

A new ¼-inch electric drill has been introduced by the Disston Division of the H. K. Porter Co. The Dirk drill is reported to give the operator better control of the tool, to make it possible to work in closer quarters, and to reduce fatigue.

The hand grip of the Dirk is large enough for the operator to hold with all four fingers and thumb. The trigger switch, which reportedly cannot be tripped accidentally, is controlled by the index finger.

According to the company, the Dirk is one of the most powerful drills in its price class. The Spiroid gear ratio reduces the output speed to 1,800 rpm, developing greater torque and reducing the chances of the motor stalling under heavy load.

For further information write to H. K. Porter Co., Inc., Disston Division, Dept. C&E, 610 Tocony, Philadelphia, Pa., or use the Request Card at page 18. Circle No. 51.



For more facts, use Request Card at page 18 and circle No. 339 ▶

ATTENTION: RESIDENT TRAINING DIRECTOR!

Why let green labor cost you money? We can furnish you with TRAINED CONCRETE TECHNICIANS who have had on-the-job experience in PATENT FORMS, (Symons, Gates, Duraform, among others), transit operation, blue print reading. These men are EAGER AND AMBITIOUS and looking to the concrete industry for their future. For further information WRITE, CALL OR WIRE:

NATIONAL INSTITUTE OF CONCRETE CONSTRUCTION, INC.
2805 E. Washington Blvd. Madison 4, Wisconsin

For more facts, use Request Card at page 18 and circle No. 340

between AMSCO and other hard rock track shoes

There's *more than just a little difference* between Amsco manganese steel hard rock track shoes and other brands. Amsco shoes are built to take the impact and abrasion of the hardest rock.

H. E. Lowdermilk Construction Company, Englewood, Colorado, and Espanola, New Mexico, specializes in rock work where the going is rough and tough. Standard track shoes for one of their HD21's *wore out completely* in as little as 270 hours. Amsco 26" manganese steel track shoes were specified and 302 hours later wear was only 5/16".

Mr. Howard Neff, mechanical superintendent for Lowdermilk, can actually measure the difference between the Amsco shoes and the ones they used to use. You will too. Just ask for Amsco shoes, available for all major makes of crawler tractors and in any special design you need.

Amsco makes a complete line of cast tractor parts, including end bits, replaceable sprocket rims, grouser bars and welding electrodes for buildup, repair and hardfacing.

AMSCO
AMERICAN MANGANESE STEEL DIVISION
CHICAGO HEIGHTS, ILLINOIS

AMERICAN Brake Shoe COMPANY

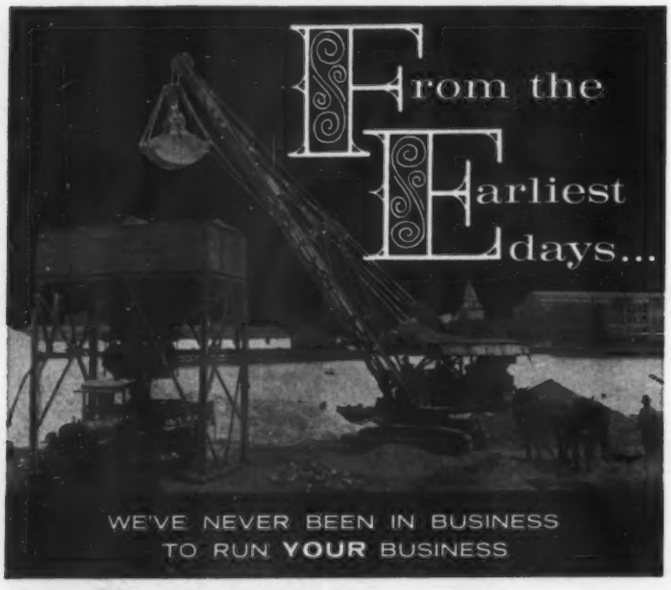
Other plants in:
Denver • Los Angeles • New Castle, Delaware
Oakland, California • St. Louis
IN CANADA: Joliette Steel and Manitoba Steel Foundry Divisions
IN MEXICO: Amsco Mexicana, S.A.

Moore Brothers Construction Co., Verona, Virginia

Ganging Symons Steel-Ply Forms Saves Weeks of Work

With only eight months to build the piers and sub-structures for nine twin highway bridges, this contractor relied 100% on Symons Steel-Ply Forms. Assembly, stripping, movement and set-up—all were handled by crane. Concrete was poured at the rate of about 3 lineal feet an hour with each pier and sub-structure poured in a continuous operation. Symons Steel-Ply Forms are rented with purchase option. **Symons Clamp & Mfg. Co., 4251 Diversey Avenue, Dept. G-1, Chicago 39, Illinois.**

For more facts, use Request Card at page 18 and circle No. 341



...BUT we do design and Build Equipment YOU require

There are several methods and techniques of batching, mixing and transporting concrete for highway, airport or structural construction. Which procedure is best, cost-wise and profit-wise depends upon many, many considerations.

Quite possibly the re-awakened interest in pouring ready mixed from high production, highly portable plants, central or transit mixing plant, directly to the paving forms may be most efficient for certain jobs.

Again, perhaps the work can be most efficiently handled by a plant batching to a paver or pavers.

THE POINT IS THIS: *No one can state categorically that one method suits all jobs. It simply is not true.*

That is why the policy of the BUTLER BIN COMPANY is to place at your command experienced consultation and the finest, most efficient equipment modern engineering, science and technology has developed — for any and every method and every job condition that produces the best concrete — at a better profit for you.

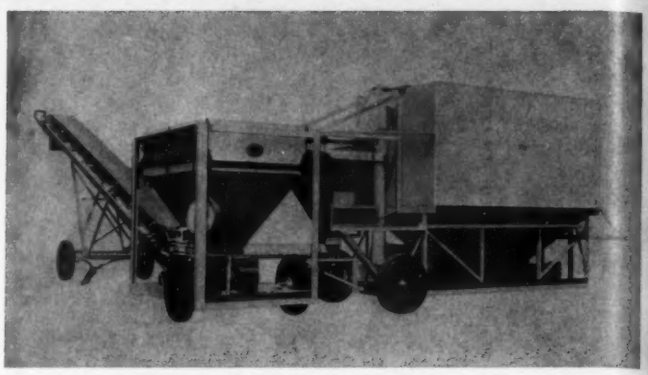
We don't run your business — we simply make it easier for *you* to run it — at peak efficiency.

So—whatever may be your problem or your thoughts are about methods, contact your BUTLER Distributor for an unprejudiced discussion of the equipment you will need.

BUTLER BIN COMPANY

971 Blackstone Ave. • Waukesha, Wisconsin

For more facts, use Request Card at page 18 and circle No. 342



Portable batch plants with fast setup time

New "portable-unitized" concrete batch plants are announced by Likens Mfg. Co. Setup time for an entire batching operation is said to be less than an hour, and no crane is required.

All units ride on heavy-duty pneumatic tires and are within legal dimensions for highway towing.

The basic unit of the Likens batcher line is the Model MS-1 horizontal cement silo, which holds 220 barrels. The silo has a 48-cubic-foot-capacity weigh hopper with air-operated gates and hand-control valves. It is teamed with the Likens Model MB-6 portable batcher to make a low-cost batch plant with 60 to 70 yards per hour output.

Up to 100 cubic yards per hour is possible with the Likens Model MB-6.330 batcher and Model RC-24-55 radial conveyor used with the MS-1 silo. The MB-6.330 batcher has a 3-compartment, 30-ton-capacity overhead bin with air controls on the gates.

All Likens units are available with gasoline-engine or electric power.

For further information write to Likens Mfg. Co., Dept. C&E, 1981 Belgrave Ave., Huntington Park, Calif., or use the Request Card at page 18. Circle No. 47.

Offer barricade flasher with special-type lens

The new Dietz Model 665 barricade flasher is said to incorporate the first optical acrylic lens specifically designed for use in flashing warning lights.

According to the manufacturer, the flashing light is evenly dispersed from the center of the lens to the edge. Twin 7-inch amber lenses mount in a visored die-cast head assembly, which may be swiveled 180 degrees for positive aiming of the warning flash.

The Model 665 delivers a tenth-of-a-second flash duration, with a flash rate of 65 flashes per minute. Approximate signal time is 750 hours with one battery or 1,500 hours with two batteries.

A ½-inch reflex reflectorized lens band provides 10 square inches of reflective surface for added safety. An 18-gage steel battery case finished in Federal yellow features a built-in tamperproof switch and barricade mounting bolt.

For further information write to the R. E. Dietz Co., Dept. C&E, 225 Wilkinson St., Syracuse 1, N. Y., or use the Request Card that is bound in at page 18 of this issue. Circle No. 133.

The new Dietz 665 barricade flasher is serviced by removing a single screw, is available with as many as 30 optional circuits.

New All-Weather Cab for Models TD9-92 series and TD20-201 series International Harvester tractors with Drott Skid Shovels

- Made of heavy gauge sheet metal
- Full vision safety glass windows, mounted in rubber — rear window slides open for ventilation. Slanted windshield permits operator to see loader bucket at all times.
- Rear portion of cab slides back and forth easily on rollers which ride on steel channels. Locking handles secure cab in either open or closed position.

See your Caterpillar distributor or write:

CAMPBELL DETACHABLE CAB CO.
WAUCONDA, ILLINOIS

For more facts, circle No. 343

e the

quest Cards

tween

ges 18 & 19

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The Dumpcrete 6-yard concrete-hauling body has a dumping cycle of 45 seconds.

Side-dump concrete truck has fast dumping cycle

The new Dumpcrete side-dump concrete-hauling body offered by Maxon Construction Co. is said to offer a number of advantages in highway and airport construction.

Electric cab controls permit driver-controlled fast discharge of a 12-ton (6-cubic-yard) load in 45 seconds from truck stop to truck go, with no dump man or spotter required.

The Dumpcrete side-dump mounts on a standard truck chassis, requires no outriggers, and drives parallel to the forms with no backing or angling of the truck. Special trailer-mounted units permit one driver and one truck to deliver up to 12 cubic yards.

For further information write to Maxon Construction Co., Inc., Dept. C&E, 2600 Far Hills Ave., Dayton 19, Ohio, or use the Request Card at page 18. Circle No. 14.

Polyurethene sealant for concrete joints

A new polyurethene joint sealant said to provide unusual resistance to wear and the penetration of foreign matter is announced by Coast Pro-Seal & Mfg. Co. Known as Pro-Seal 962, it is specifically designed for use in sealing highway, bridge, airport-runway, and other joints.

Supplied in two components, the sealant is mixed on the job. It cures in place to form a permanently flexible, self-leveling, elastomeric joint. When used with primers recommended by the manufacturer, Pro-Seal 962 reportedly develops a high degree of adhesion to most surfaces.

The new sealant is available in pourable form in three variations—fast curing, regular curing, and ultra-fast curing (for gun application).

For further information write to Coast Pro-Seal & Mfg. Co., Dept. C&E, 2235 Beverly Blvd., Los Angeles 57, Calif., or use the Request Card that is bound in at page 18 of this issue. Circle No. 35.

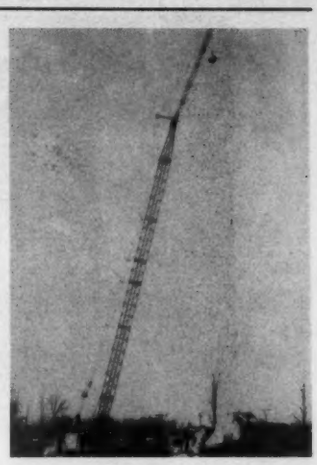
Lightweight crane boom has 14-ton capacity

A new, lightweight boom for its 40-ton Model 610-T8440 Crane-Mobile has been announced by Bay City Shovels, Inc.

The boom carries 150 feet of main boom, plus a 50-foot jib, for a total reach of 200 feet. The basic boom is 40 feet long, pin-connected, and has 10, 20, and 30-foot center sections with pendants of corresponding length and swaged sockets.

Constructed of lightweight seamless tubular steel, the basic boom has a box section of 48 × 48 inches. The basic jib is 20 feet long and has 10-foot center sections, with a single ball-bearing mounted sheave at the jib point.

The 150-foot-boom and 50-foot-jib combination provides a capacity of 6,000 pounds; the boom alone, a capacity of 27,850 pounds at a 35-foot radius.



For further information write to Bay City Shovels, Inc., Dept. C&E, Bay City, Mich., or use the Request Card at page 18. Circle No. 153.

Branick
AIR OPERATED

HEAVY-DUTY "EF-ERT-LESS" TIRE SPREADER

LIFTS • SPREADS • REVOLVES

HEAVY PLY AND WIRE CORD TIRES

The Branick HEAVY-DUTY "EF-ERT-LESS" Tire Spreader handles tires up thru 14:00-24", 20 ply, and is POWERFUL, QUICK OPERATING, SAVING TIME AND LABOR and is built for RUGGED USE. A spreader that is easy to operate, taking the heavy work out of spreading, inspecting and repairing the big tires.

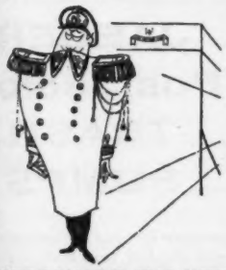
$1035.00 F.O.B. FACTORY

MAIL A POSTCARD TODAY FOR COMPLETE DETAILS

BRANICK MFG. CO.

FARGO, BOX 1937 NORTH DAKOTA

For more facts, use Request Card at page 18 and circle No. 345



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DRYDEN-EAST HOTEL

39th St., East of Lexington Ave.

NEW YORK

Salon-size rooms • Terraces • New appointments, newly decorated • New 21" color TV • FM radio • New controlled air conditioning • New extension phones in bathroom • New private cocktail bar • Choice East Side, midtown area • A new concept of service. Prompt, pleasant, unobtrusive.

Single $15 to $22 Suites to $60
Special rates by the month or lease

Robert Sarason, General Manager
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STATIONARY PLANT FEATURES . . .

STATIONARY PLANT CAPACITY
100 Yards per hour

HIGHLY PORTABLE
can be moved with two trucks

EASY TO ERECT
in four hours

The all-new highly mobile Ross 60-7 Aggregate Plant and 500 SP* Silo is the answer to high portability plus the advantages of stationary plant production. The 60-ton overhead storage can be increased to 105 tons simply by an additional bin extension. This plant will produce 100 yards of concrete per hour with proper allied equipment.

*Special Pneumatic Receiving

ROSS PORTA-PLANT

BOX [illegible] PHONE MI 3-4356 BROWNWOOD, TEXAS

ANOTHER EXAMPLE OF ROSS LEADERSHIP!

For more facts, use Request Card at page 18 and circle No. 344

The new Warner & Swasey backhoe attachment reportedly snaps on or off in less than a minute, without tools.

New hydraulic backhoe for wheel-type loaders

A new Warner & Swasey hydraulic backhoe built for use with Caterpillar Models 922, 944, and 966 wheel-type loaders is announced by the company's Badger Division.

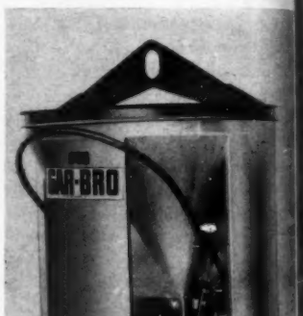
The backhoe is fully hydraulic and can be attached or removed in less than a minute without tools, according to the manufacturer. Other major features include 180-degree continuous swing and 180-degree bucket tilt. The unit has a 12-foot 4-inch digging depth, 10,000-pound breakaway bucket teeth, and 15½-foot reach from center of rotation.

Outriggers are individually controlled, and a turret-type operator's seat is offered. Exclusive quick-change buckets are used.

For further information write The Warner & Swasey Co., Dept. C&E, 1124 W. 5th St., Winona, Minn., or use the Request Card at page 18. Circle No. 36.

Bucket line designed for low-slump concrete

New, improved concrete buckets, featuring extra-large, double-clamshell gates and low loading heights, are announced by Gar-Bro Mfg. Co. The new buckets are designed especially for handling the lower-slump concrete often used on building jobs. According to the manufacturer, these buckets have steep side slopes to accommodate stiffer concrete. Low loading heights make it possible to load buckets up to and including the 2-cubic-yard size from most ready-mix trucks.



The vertical center discharge on these units is said to prevent segregation of concrete mix. The patented, extra-large, double-clamshell gates are reportedly non-jamming and grout-tight. Large gear teeth and self-closing springs are designed to provide easy gate control. The gates close automatically.

The new buckets come in eight sizes ranging from ⅓ to 4 cubic yards rated capacity. All models are normally equipped for manual gate operation, but air-operated gates and remote control for underwater placing are available.

For further information write to Gar-Bro Mfg. Co., Dept. C&E, 2415 E. Washington Blvd., Los Angeles 21, Calif., or use the Request Card at page 18. Circle No. 42.

ESSICK

VIBRATING COMPACTORS

COSTS DOWN—COMPACTION UP!

WITH ESSICK 54" VIBRATING COMPACTOR

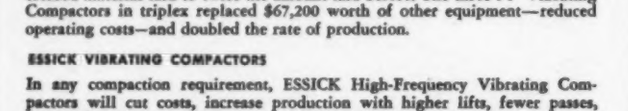
CONTRACTOR REPLACES EQUIPMENT WORTH $67,200 AND DOUBLES PRODUCTION RATE—WITH HIGHER DENSITIES—FEWER PASSES—HIGHER LIFTS

On Texas State Highway 180, Fred Hall & Sons Contractor, were using two Model M tractors, three 10 ton pneumatics, one 3 wheel 10 ton roller, one 50 ton self propelled pneumatic, and one blade to compact crushed limestone with four different clay contents varying from 10% to 15%. They were having considerable trouble getting densities with 2" lifts and many passes of the 10 ton pneumatics, the 50 ton pneumatic on the third lift of 6", and a slushing and final rolling with the three wheel roller to slick off.

Three Essick VR-54 (54") Vibrating Compactors in triplex hook-up made two passes on the full six inch lift, with one more fast pass after a water slush to slick off. They got the required density of 140 pounds to the cubic foot, and increased material laid to twice the amount laid before. The three 54" Vibrating Compactors in triplex replaced $67,200 worth of other equipment—reduced operating costs—and doubled the rate of production.

ESSICK VIBRATING COMPACTORS

In any compaction requirement, ESSICK High-Frequency Vibrating Compactors will cut costs, increase production with higher lifts, fewer passes, higher densities, at a greater profit. ESSICK Vibrating Compactors are constantly increasing the profit of thousands of contractors like Fred Hall & Sons and can do the same for you.



Also 14 Models of Tandem Rollers from ½ to 14 Tons.

SEE YOUR ESSICK DEALER FOR A DEMONSTRATION ON YOUR JOB

ESSICK MANUFACTURING COMPANY

1950 Santa Fe Avenue, Los Angeles 21, California

850 Woodruff Lane, Elizabeth, New Jersey

Affiliated with THE T. L. SMITH CO., Milwaukee, Wisconsin

For more facts, use Request Card at page 18 and circle No. 346

JAEGER PosiJector TRASH PUMPS

- New 3" and 4" self-priming centrifugals pass and positively eject trash while pumping 20,000 and 46,000 gph. Highly efficient whether pumping dirty water or clean.
- "PosiJector" prevents recirculation of solids, channels them into discharge flow.
- Non-clogging strainer passes sticks, leaves.
- Heavy 2-bladed impeller passes solids to 2".
- Suction chamber unbolts for quick inspection, adjustment, cleaning.
- Ask your Jaeger distributor or send for Catalog PT-1.

THE JAEGER MACHINE CO.

Columbus 16, Ohio

For more facts, use Request Card at page 18 and circle No. 347

The new White Model L-201 asphalt plant, rated at 25 to 30 tph, is said to have many features ordinarily found only on larger plants.

New asphalt plant rated at 25–30 tph

The White Mfg. Co. announces its new Model L-201 asphalt plant. "Big plant" features, according to the company, include the exclusive parallel-flow dryer, hot elevator, 5-ton hot storage bin, air-operated gates, and batching tower with 1,000-pound mixer.

The plant is rated at 25 to 30 tons per hour hot-mix. Aggregate mixes can be quickly and easily changed, making it possible to run a few loads of base material and switch to top material with a minimum loss of time, the manufacturer reports.

Accessories available include an asphalt meter, a dust collector, aggregate and asphalt scales, and asphalt heating systems.

For further information write to the White Mfg. Co., Inc., Dept. C&E, 1227 W. Beardsley Ave., Elkhart, Ind., or use the Request Card at page 18. Circle No. 3.

Compressible sealant now offered in U. S.

Compriband, a compressible waterproofing sealant developed in Holland, is now available in this country through Pacific Sealants of Long Beach, Calif.

Used extensively in Europe as a joint sealer on buildings, bridges, roads, airfields, tunnels, dams, reservoirs, etc., the material employs the principle of impregnating polyurethane foam with asphalt bitumen. Under compression, the original cellular structure of Compriband is said to become completely watertight and to bond to contacting surfaces.

Properties of the material reportedly include chemical and physical stability under extremes of heat and cold, low thermal conductivity, nonstaining (except at point of seal), non-bleeding, ease of handling and application, resistance to chemicals and fumes, and sound and vibration isolation characteristics.

For further information write to Pacific Sealants, Dept. C&E, 1491 Daisy Ave., Long Beach 13, Calif., or use the Request Card at page 18. Circle No. 22.

For more facts, use Request Card at page 18 and circle No. 348 ▶

Prime-Mover Concrete Vibrator

Designed on the proven rolling-weight principle that:

1. Produces high frequency powerful vibrations
2. Permits the shaft to run cool and slow
3. Provides one hand portability
4. Changes from small to large heads quickly
5. Requires fewer parts — less maintenance
6. Gasoline or electric power units

Guaranteed by Prime-Mover Co. — recognized for dependability in concrete handling equipment. Write to us for distributor's name and a demonstration. Prime-Mover Co. Muscatine, Iowa.

PRIME-MOVER

For more facts, use Request Card at page 18 and circle No. 349

MARION'S NEW Adjustable-Speed TRANSMISSION GETS YOU FROM

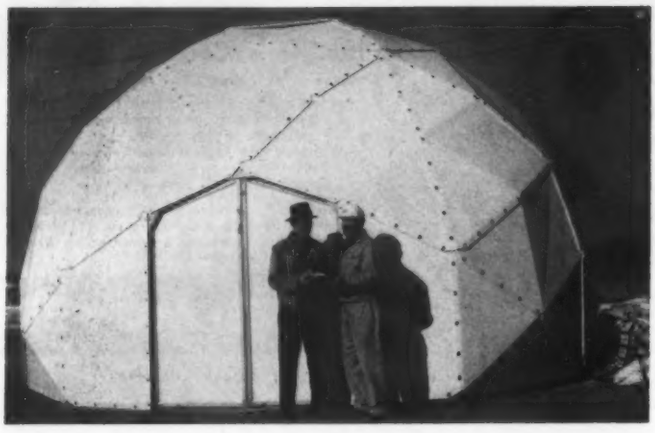
FASTER, SMOOTHER...and SAFER!

Marion's done it again! This time with an instant-shift transmission called GEARMATIC that lets your operator shift ANY TIME during the lift WITHOUT STOPPING OR EVEN SLOWING the hoist machinery. There's a low-speed, deep-power ratio for easing the load off the ground and for accurate final spotting . . . a high speed ratio for rapid hoisting . . . and an intermediate speed for average work. Your operator simply selects the speeds he wants to use—without touching a clutch or brake. We can put you lifts ahead of your competition with a GEARMATIC-equipped Marion. Let us tell you more!

MARION POWER SHOVEL COMPANY • MARION, OHIO

A Division of Universal Marion Corporation

MARION



The new Geospace dome is recommended as a low-cost shelter for storage or as a construction shack.

Geodesic dome houses field office, materials

A new, lightweight, dome-shaped structure 22 feet in diameter, said to be sturdy, durable, and economical, is offered by Filtered Rosin Products Co. as a ready-to-assemble shelter for a wide variety of uses, including job-site storage, construction shack, or field office.

Called the Geospace dome shelter, the unit is a free-standing portable dome 12½ feet tall, weighing 450 pounds, and containing 352 square feet of usable floor space.

The dome shelter comes equipped with a hinged double door, window openings, and ceiling vents, and is available in a choice of pale yellow, forest green, and eggshell white.

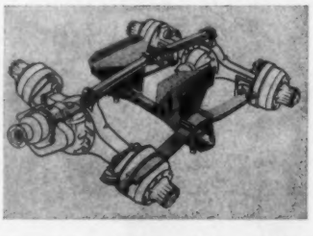
No foundation or special site preparation is said to be necessary for the dome. It bolts to a wooden base ring, which is staked to the ground for permanence. Unstaked, the dome can be lifted and carried by four men, or disassembled for longer moves or for compact storage.

For further information write to Filtered Rosin Products Co., Dept. C&E, 800 N. Lindbergh Blvd., St. Louis 66, Mo., or use the Request Card at page 18. Circle No. 45.

Tandem suspension offers more payload, comfort

Minimum-weight suspension with the "rideability" possible only with long-leaf springs are two of the features claimed for a new tandem suspension system offered by Rockwell-Standard. Trucks equipped with the Taper-Leaf suspension can carry up to 434 pounds more payload with a cushioned, more comfortable ride, according to the manufacturer.

The new suspension is said to achieve the same load-carrying capacity with two leaves that standard



suspensions carry with multiple leaves, at the same time representing a great saving in weight.

Because of a unique spring attachment and a simplified seat assembly, quick and easy maintenance is assured, the company reports. The drive load is transmitted through the slotted springs that are assembled over removable eccentric blocks located on pins in the housing brackets.

For further information write to Rockwell-Standard Corp., Transmission and Axle Division, Dept. C&E, Detroit 32, Mich., or use the Request Card that is bound in at page 18. Circle No. 53.

Three new backhoes for utility tractors

Three new Parsons-Shawnee ba
hoes for utility tractors have been a
nounced by the Parsons Co. The u
include the Model 1000, with a digg
capacity of 10 feet; the 12-foot 12
and the 13-foot 1300.

These new backhoes feature Hy
way hydraulics with cylinders, p
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a 3-position bucket; nonskid sta
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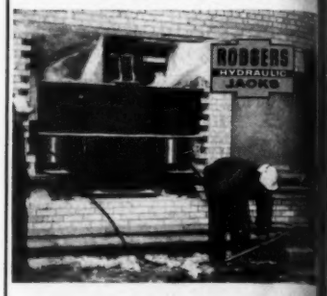
chain or through direct hydra
cylinder hookup to swing post; sa
locks on both boom and swing; m
tiple series control; rubber stops



BRUTE FORCE!

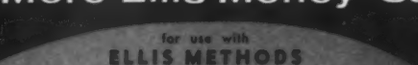
Here, a pair of RODGERS hydraulic jacks are used to support the weight of a 16-story building. You can use this same brute force to push culvert, pipe, or casings . . . set concrete decking . . . support overhead forms . . . raise bridges or buildings . . . in fact, for *any* job that requires heavy lifting, pressing, pushing, or pulling. Result: You save time, cut costs. Capacities to 600 tons, hand-pump operated or power driven. Get full details *now*. J-104D

RODGERS HYDRAULIC, INC.
Pioneer in high-pressure Hydraulics, since 1931
7401 Walker St. • Minneapolis 26, Minnesota

For more facts, circle No. 352

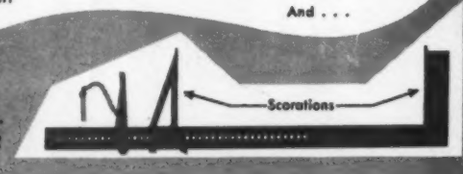
2 More Ellis Money-Savers

for use with
ELLIS METHODS
of Suspended Reinforced Concrete Construction



. . . Ellis Methods' turnbuckle device for bracing and quick alignment of wall forms (used at either end of a wood brace), sprandrel beam forms, or column forms . . . nail to wood member with duplex nails, adjust with claw hammer!

And . . .



The Ellis B.-C.-P. Clamp, adjustable from 5" to 30", proves equally effective on beam, column, or pilaster forms. No need for most cleats, whalers, scabbing, bracing, nailing . . . meaning big savings on lumber!

Write for Details!

Ellis MFG. CO.
INCORPORATED
211 N. W. 4th St. OKLAHOMA CITY, OKLA.

For more facts, use Request Card at page 18 and circle No. 350

HIGH RECOVERY AT LOW COST WITH

ACKER DIAMOND BITS

Highest recovery at lowest cost is no idle boast. These Acker diamond bits are backed by forty years of experience in drilling equipment, tools and accessories. Top quality, selected stones, set by experienced hands assure you maximum cutting efficiency and endurance. Scrupulous inspections insure quality control! See for yourself how much you stand to gain when you standardize on Acker! Try an Acker diamond bit on *your* next job.

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Day and Night...
KATOLIGHT
Portable
POWER PLANTS

KEEP CONSTRUCTION MOVING AT TOP SPEED... ECONOMICALLY!

With instant, dependable, on-the-job electrical power, work speeds up, costs go down.

KATOLIGHT Portable Plants give your crews "plug-in power" anywhere... anyplace for lighting, electrical tools and equipment.

THERE IS A SIZE AND MODEL FOR EVERY PORTABLE, STANDBY, CONTINUOUS USE FROM 350 WATTS TO 125 KW, UP TO 500 KVA ON REQUEST!

KATOLIGHT CORPORATION
Box 891-B · MANKATO, MINNESOTA

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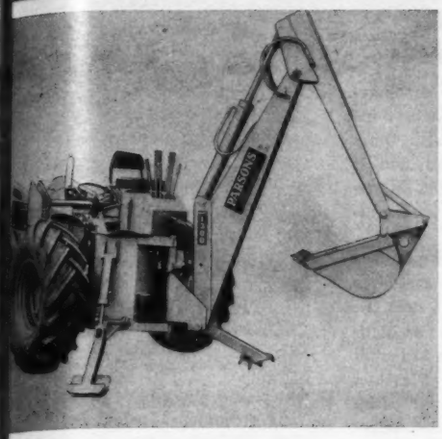


The Parsons - Shawnee Model 1300 backhoe, largest in a series of three new attachments announced by the Parsons Co.

the frame to cushion against swing mechanism; and full 180-degree swing.

Each of these new attachments fits on all popular makes of utility tractors, both new and used, according to the manufacturer.

For further information write to Parsons Co., division of Koehring Co., Dept. C&E, P. O. Box 431, Newton, Iowa, or use the Request Card at page 18. Circle No. 40.

Heavy-duty tamper for confined areas

Production of a new, jump-type compactor has been announced by the Master Vibrator Co. The unit is recommended by the company for use in trenches, against abutments, and wherever space is limited.

The self-propelled Jumping-Jack is said to be easy for one man to operate, having its power stroke directly on the center of gravity. It is effective for compacting many types of soil, especially cohesive clay, silt, etc.

The new compactor is portable, weighing only 120 pounds, but is said to offer impressive compaction force, delivering 350 to 700 900-pound blows

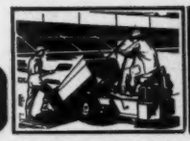
per minute. It reportedly requires less maintenance, since the ramming device and gear box are sealed against dirt. It features a self-actuated lubrication system.

For further information write to the Master Vibrator Co., Dept. C&E, 1752 Stanley Ave., Dayton 1, Ohio, or use the Request Card at page 18. Circle No. 10.

POWER TO PRODUCE

Prime-Mover M-30A gives high production on the toughest jobs. More trips, less maintenance, smoother operation, with exclusive hydraulic torque converter drive. Hauls 2/3 yard or 1-1/2 ton. Bucket and flatbed interchangeable. Write for proof of production performance. Prime-Mover Co., Muscatine, Iowa.

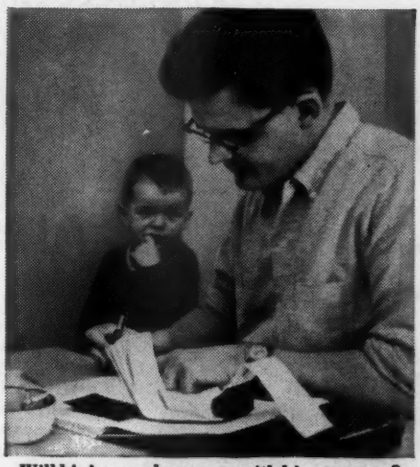
PRIME-MOVER



with torque converter drive

For more facts, use Request Card at page 18 and circle No. 354

How to make more money on payday without getting a raise



Will his income keep pace with his expenses? A sure way to plan extra income is through the Payroll Savings Plan for U.S. Savings Bonds. Once you join the Plan, you never need worry about saving again.

You save more than money. You make sure of enjoying the things you're saving for. Every U. S. Savings Bond helps your Government keep the Peace.

Why wait for a raise when you can do something now about increasing your income? More than 8 million Americans are doing it every payday by buying U.S. Savings Bonds on the Payroll Savings Plan. It works like this: each payday your payroll clerk sets aside whatever amount you wish, buys your Bonds, and delivers them. When you cash your mature Bonds for a trip or college for the children, or retirement, you get back one-third more money—$4 for every $3 you put in, guaranteed. Why not start planning a bigger payday this easy way today?

Why U.S. Savings Bonds are good to buy and hold

You can save automatically on the Payroll Savings Plan, or buy Bonds at any bank • You now earn 3¾% to maturity, ½% more than ever before • You invest without risk under a U.S. Government guarantee • Your Bonds are replaced free if lost or stolen • You can get your money with interest anytime you want it • You save more than money—you buy shares in a stronger America.

Start an album of presidents. There's a different U.S. President's picture on each of the 7 denominations of Series E Savings Bonds. More than two billions of these "portraits" have been collected by Americans since the first E Bond was issued on May 1, 1941.

20th ANNIVERSARY 1941 1961

You save more than money with U.S. Savings Bonds

This advertising is donated by The Advertising Council and this magazine.

The Athey Model PR630 40-ton rear-dump trailer, teamed with the Caterpillar Model 630 4-wheel tractor, achieves speeds over 41 mph. This is one of six new wagons and trailers offered by Athey.

New trailers, wagons boost payloads, speeds

Six new high-capacity earthmoving wagons and trailers have been introduced by Athey Products Corp. The completely redesigned line is based on new developments in the hauling field, according to the manufacturer.

A key factor in providing increased capacity and faster haul speeds in these units is the use of T-1 steel, the manufacturer reports. This new high-strength steel alloy is said to permit "thinner" body sections of greater strength than conventional steels provide, in turn reducing dead weight and making greater payloads possible.

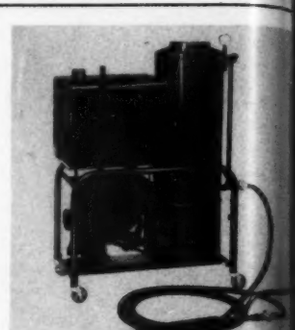
All six models reportedly feature big, wide targets for fast, efficient loading; nonrigid, articulated design for handling ease and exceptional maneuverability over the roughest terrain; low center of gravity, with loads cradled down between the wheels for safety and stability; and large low-pressure, high-flotation rubber tires.

For further information write to the Athey Products Corp., Dept. C&E, 5631 W. 65th St., Chicago, Ill., or use the card at page 18. Circle No. 154.

Portable steam cleaner has big-unit features

A new steam cleaner designed for maintenance shops or operations with limited cleaning needs, or for larger operations requiring an auxiliary or standby that can be easily moved about, is announced by the Malsbary Mfg. Co.

The pressure range—60 to 100 pounds—in the new Model 100 is the same as that of most larger cleaners. A positive, nonfluctuating pressure control, designed for the oil-fired



model, maintains pressure to w... plus or minus 1 pound of set...

The Malsbary 100 measures ... 35 inches long, 19 inches wide, ... 53 inches high. The caster-mount... oil-fired model has a hose and g... rack. A stationary gas-fired model ... also available.

For further information write ... the Malsbary Mfg. Co., Dept. C... 845 92nd Ave., Oakland 3, Calif., ... use the Request Card at page ... Circle No. 155.

Novel delivery system for "instant" concrete

A new concrete delivery syst... that uses a compartmentalized rubb... batch bag containing the ingredien... for mixing concrete is offered ... General Tire & Rubber Co.

The 6-foot-high rugged bag co... tains an inner rubber core for storag... of cement and a surrounding com... partment that contains aggrega... and water. The cement is sealed o... and protected from moisture.

The bags, each of which has 1½ ... cubic-yard capacity, can be deliver... straight from the producing sour... to a job and dumped there like a... other building material, to be ...

WHEN CONSTRUCTION JOBS CALL FOR SOIL COMPACTION

BARCO is the ANSWER!

When You're Figuring For The "Low Bid"—No other tool can give you the economy and dependability offered by Barco Rammers on high degree soil compaction for all kinds of projects—Highways, Freeways, Hydro-electric Power and Flood Control Dams, Airports, Bridges, Defense Sites, Buildings, and Housing Developments!

When You Have To Meet Tough Specifications—In test after test, Barco Rammers have demonstrated their ability to deliver 95% to 97.5% compaction (modified Proctor Method)—EASILY! EFFICIENTLY! ECONOMICALLY! The Barco Rammer is especially useful for compacting fill in restricted areas. ASK FOR A DEMONSTRATION.

When You're Up Against A Tight Schedule—One of the biggest advantages offered by Barco Rammers is ability to handle work in minimum time. On area tamping, one man can average 20 to 30 cubic yards of fill per hour. On trench back fill, using lifts up to 24", the rate for 18" trench is 360 to 600 feet per hour. *When time is at a premium,* BARCO PERFORMANCE PAYS DIVIDENDS—find out about it NOW!

For Soil Compaction Close to Walls, Culverts and Abutments—in Trenches, Ditches

Sold and Serviced by the Nation's Leading Distributors

FOUNDED 1900

BARCO RAMMER

BARCO MANUFACTURING CO.
518H Hough St., Barrington, Illinois

Gentlemen:
YES! I want to know about Barco Rammers for Soil Compaction:

Name_____

Company_____

Address_____

☐ Please send me the name and address of your nearest dealer.

☐ Without obligating me, I would be interested in a DEMONSTRATION.

☐ Please send General Catalog No. 621.

☐ Please send free bulletin on "SOIL COMPACTION COST DATA."

For more facts, use coupon or Request Card at page 18 and circle No. 353

Hammerlok®
COUPLING LINK

MAKE UP YOUR OWN HERC-ALLOY SLINGS. No more waiting for new or repaired assemblies to reach you from the factory.

- No peening or welding
- Anybody can assemble
- Stronger than Herc-Alloy chain
- Thoroughly field tested
- Re-useable and SAFE

Write for Bulletin and name of your CM Distributor stocking Herc-Alloy chain, master links, hooks and Hammerlok coupling links.

RUGGED · DURABLE CM CHAIN

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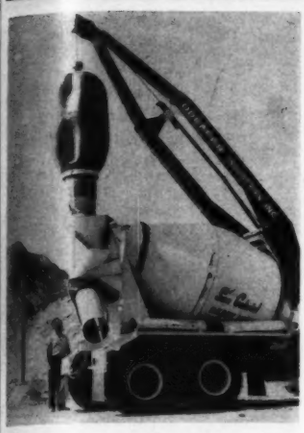
SAN FRANCISCO
In Canada: Columbus McKinnon Limited, St. Catharines, Ontario

HERC-ALLOY®

For more facts, use Request Card at page 18 and circle No. 356



Cement, water, and aggregate from two compartments in General Tire's rubber batch bag are discharged into the hopper of a transit-mix truck.

at the convenience of the contractor.

When the contractor is ready to place concrete, the bags reportedly can be lifted by any standard lifting device of 3½-ton capacity to any mixer used in the field.

Reported advantages of the new system include: production of a more uniform product; improved methods of job and personnel scheduling; and straight-line delivery from source of aggregates to point of use.

For further information write to General Tire & Rubber Co., Dept. C&E, 1708 E. Market St., Akron, Ohio, or use the Request Card at page 18. Circle No. 54.

Scales for aggregate weighing in lab, field

Scales designed for laboratory or field weighing of aggregate samples are offered by Gilson Screen Co. Two models, both of platform design and with full-capacity beams, are available.

No loose weights are required for either model. Beams are graduated in pounds, tenths, and hundredths to simplify computations and records.

The Model 107-X is a triple-beam scale with a capacity of 107 pounds. It is primarily intended for use with Gilson hydraulic and standard testing screens. The platform of this model is approximately 16 × 21 inches. The Model 51-X is a portable, double-beam scale with a capacity of 51 pounds, and is particularly recommended by the manufacturer for use with Gilson's Porta-Screen. The platform measures 12½ × 16½ inches.

For further information write to Gilson Screen Co., Dept. C&E, 110 Center St., Malinta, Ohio, or use the Request Card at page 18. Circle No. 24.

An engineer uses the new DynaMetric blaster with the Model 117 seismic timer to determine depth to bedrock.

Offer blasting device for bedrock studies

A new, compact blasting device is offered by DynaMetric, Inc. Used with the DynaMetric 117 self-powered seismic timer, the blaster is reported to greatly extend the range of overburden and subsurface-materials classification studies.

The lightweight blaster, measuring 4 × 7 inches, is a battery-operated, capacitor-discharge type, said to be good for thousands of shots without battery replacement. It has a built-in circuit tester, ready light, and positive 3-switch safety feature. The blaster is available in 2-cap capacity or in multicap capacity.

For further information write to DynaMetric, Inc., Dept. C&E, 2955 E. Colorado Blvd., Pasadena, Calif., or use the Request Card at page 18. Circle No. 75.

Offer 'economy line' of pumps, generators

Homelite Division of Textron, Inc., has added a new line of economy-priced 4-cycle engine-driven pumps and generators. Like Homelite's standard line of 2-cycle engine-driven equipment, the new units are easily portable.

The new, self-priming pumps are available in 1½, 2, and 3-inch centrifugal and 3-inch diaphragm models. They feature Ceraseal ceramic seals, Briggs & Stratton engines

TRIAL SAMPLES
Of World-Famous WHITMORE'S Lubricants

OPEN CHAIN LUBRICANT INCREASES CHAIN LIFE UP TO 300%

Penetrates, lubricates, prevents rust. Lubricates deep into chain linkage to reduce friction on pins, rollers, bushings, pressure surfaces. Corrosion inhibitor prevents rust in vital working mechanisms. Lubricates close-tolerance internal surfaces to increase chain life up to 300%. Highly recommended for all climatic conditions to stop rust and corrosion even in salt atmospheres.

Packaged in handy 16 oz. aerosol spray-on containers or in bulk—send for a free trial sample.

ANTI-FRICTION COMPOSITIONS HAVE NO MELTING OR DROPPING POINT

Packaged in 14½ oz. cartridges for handy application with lever-type cartridge guns for constant protection to roller, ball, sleeve bearings and sliding surfaces in "hot" bearing applications or in areas with high ambient heat. Exclusive formulas have no melting or dropping point; moisture resistant; will not wash out; exceptional metal adherence properties; temperature reducing qualities; high extreme pressure values. Available in two grades. Whitmore's Anti-Friction Composition No. 1 (light density), recommended for high speed, high temperature applications. Anti-Friction Composition No. 2 (heavy density), for low-speed high-temperature applications or loosely-fitted bearings. Specify No. when requesting free trial sample.

68 YEARS OF LEADERSHIP LUBRICATING THE FOLLOWING:

• Open Gears, Dipper Sticks, Cams • Open and Enclosed Chain • Speed Reducers
• Enclosed Gear Cases • Roller, Ball and Sleeve Bearings • Wire Rope and Cable
• Hydraulic Units, Torque Converters

Est. 1893
THE WHITMORE MANUFACTURING CO.
LUBRICATING ENGINEERS
CLEVELAND 4, OHIO • VULCAN 3-7272

For more facts, use Request Card at page 18 and circle No. 357

NEW! MOBILE ONE-STOP PAVING PLANT CUTS HIGH COST OF PAVING

Heltzel's NEW 700 SERIES can be taken down, towed by a tractor to a new location and set up again by two men in less than 5 hours (plus actual travel time). Plant is hydraulically self-elevating and requires no crane or concrete foundations for set-up. Cost of average erection is under $100.00.

On highway jobs you can move your batching operation quickly, easily, and inexpensively as work progresses. Fewer trucks on shorter hauls (and shorter haul roads) also cut paving costs.

This mobile one-stop paving plant is available with manual or fully automatic batchers. Production rate is 120 to 227 yards per hour. Features two or three-belt aggregate conveyor system and integral, sealed, screw conveyor cement handling system. Two or three-compartment aggregate storage bin can be charged with front end loader. Plant operates on 220 V or 440 V from a single, quick-connect cable.

For complete information on this revolutionary Heltzel mobile paving plant, the **new** Heltzel mobile self-erect ready-mix plant, or the new mobile central mix plant — see your nearest Heltzel distributor . . . or write for Bulletin No. 61-22R and Data Book 261.

HELTZEL

THE HELTZEL STEEL FORM & IRON COMPANY
WARREN, OHIO

For more facts, use Request Card at page 18 and circle No. 358

The Model 46A115 lightweight generator at lower right is part of Homelite's new, economy-priced line of portable pumps and generators driven by 4-cycle engines.

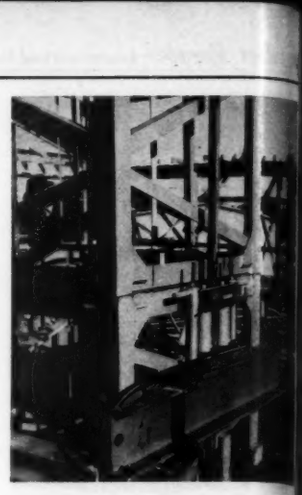
(*Continued from preceding page*)

with special long-life valves and variable speed control, 28-foot suction lift, and big pumping capacities. The new generators come in 1,500, 3,000, and 5,000-watt sizes.

All Homelite 4-cycle pumps and generators are available with either gasoline or LPG-operated engines.

For further information write to Homelite Division of Textron, Inc., Dept. C&E, 70 Riverdale Ave., Port Chester, N. Y., or use the Request Card that is bound in at page 18 of this issue. Circle No. 8.

A close-up of the new hydraulic climbing arrangement on Concretor-Linden climbing cranes.



Hydraulic arrangement for climbing crane

Concretor-Linden cranes are now equipped with a hydraulic climbing arrangement that operates by push-button control, thus eliminating complicated wires or pulley blocks, according to B. M. Heede, Inc. The crane raises itself 2 or 3 floors at a time while work is in progress.

Other reported features of the Concretor-Linden climbing crane include exact placing of loads with ease, due to the operator's ability to manipulate the crane by remote control. The remote-control box enables the operator to see all phases of loading and unloading, eliminating the need for signalmen and other costly communication systems. The 100-foot trolley jib can rotate 360 degrees, allowing material to be placed anywhere within a 100-foot radius without rehandling.

For further information write B. M. Heede, Inc., Dept. C&E, 30-0 37th Ave., Long Island City 1, N. Y., or use the Request Card at page Circle No. 15.

The Freeman 800 Series loader is designed for use on five well known industrial tractors.

Loader in three sizes for industrial tractors

Freeman Industries, Inc., announces a new series of industrial loaders for Ford, Oliver, Allis-Chalmers, Ford Ferguson, and Massey-Ferguson tractors.

The new 800 Series is said to incorporate compact and rugged construction, as well as other design features including a heavy box frame of 3/16-inch-thick material, 2-piece subframe for ease in attachment, and 4-point mounting for maximum weight distribution.

Lift capacity to full height of

MARVEL
SYNCLINAL FILTERS

FOR DEPENDABLE PROTECTION on all Hydraulic and other low pressure circulating systems

Designed to give more ACTIVE filtering area—MORE dependable protection—MORE productive operation before cleaning is necessary. *Meet J.I.C. Standards.*

A

A—Synclinal SUMP TYPE
CAPACITIES: 5—8—10—20—30—50—75 and 100 G.P.M.
PIPE SIZES: ¾"—1"—1¼"—1½"—2"—2½" and 3".
CONNECTIONS: Coupling—Male Nipple.
BY-PASS VALVE: Not available.

B—Synclinal LINE TYPE
CAPACITIES: 5—8—10—20—30—50—75 and 100 G.P.M.
PIPE SIZES: ¾"—1"—1¼"—1½"—2"—2½" and 3".
BY-PASS VALVE: Not available.
OPERATING PRESSURES: Up to 80 p.s.i.

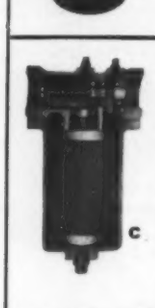
C—Bonded LINE TYPE
CAPACITIES: 10—20—30—50 and 75 G.P.M.
PIPE SIZES: 1"—1¼"—1½"—2" and 2½".
BY-PASS VALVE: Available with or without.
OPERATING PRESSURE: Up to 250 p.s.i.
OPERATING TEMPERATURES up to 300° F.

B

D—IN-LINE FILTER
CAPACITIES: Up to 60 G.P.M.
PIPE SIZES: ¾"—1"—1¼" and 1½" (at both inlet and outlet).
BY-PASS VALVE: Available with or without.

E—Bonded SUMP TYPE
CAPACITIES: 10—20—30—50 and 75 G.P.M.
PIPE SIZES: 1"—1¼"—1½"—2" and 2½".
CONNECTIONS: Coupling—"O" Ring—Male Nipple.
BY-PASS VALVE: Available with or without.

F—Tandem SUMP TYPE
CAPACITIES: 10—16—20—40—60—100—150 and 200 G.P.M.
PIPE SIZES: ¾"—1"—1¼"—1½"—2"—2½" and 3".
CONNECTIONS: Coupling—Male Nipple.
BY-PASS VALVE: Not available.



C

D

E

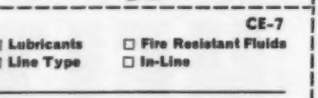
F

FILTERING MEDIA in all Marvel Filters is Monel wire cloth available in mesh sizes of 30-40-50-80-80-100-150 and 200 to meet your filtration requirement.
EASY TO CLEAN—All Marvel Filters are easy to clean. Line type units operate in any position and may be serviced without disturbing pipe connections.
OVER 900 O. E. M's. install Marvel Filters as Standard Equipment.

IMMEDIATE DELIVERY

For further information on a specific type filter—Write—wire or phone

MARVEL ENGINEERING COMPANY
7227 N. Hamlin Ave., Chicago 45, Ill.
Phone: JUniper 8-6023



Please send me information on Marvel Filters as indicated: CE-7
☐ Hydraulic Oils ☐ Coolants ☐ Lubricants ☐ Fire Resistant Fluids
☐ Water ☐ Sump Type ☐ Line Type ☐ In-Line
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Company
Address
City State

Biggest news in '61

J-RAM

Another RELIABLE tamper by Jay

Compacts clay fast • Saves on labor • Cuts downtime

This new Jay Tamper gives better, faster earth compaction. Savings up to 90% and more. Easy to meet Proctor density spec. . . . under foundations, in ditches, under slabs. Weighs only 135 pounds. Engine 4-cycle, cast-iron—450 to 675 blows per minute. Choice of tamping plates. Saves "down-time" expense. Get a demonstration; find how Jay Tampers can save and EARN money for you.

JAY tampers

Best on Earth

Jay Company Division, J. LEUKART MACHINE CO., INC.
2222 S. Third Street, Columbus 7, Ohio

For more facts, use Request Card at page 18 and circle No. 359

feet 4 inches is 2,000 pounds; at half height, 3,000 pounds. Breakaway capacity is 3,250 pounds; clearance, 9 feet 10 inches; and dump height, 8 feet 5 inches.

Material buckets with 12, 15, and 18-cubic-foot capacities are offered.

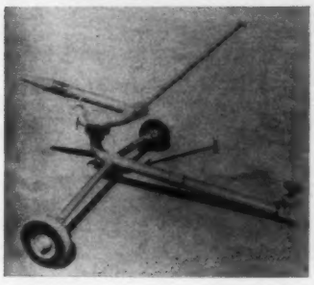
For further information write to Freeman Industries, Inc., Dept. C&E, Blair Pike Road, Peru, Ind., or use the card at page 18. Circle No. 156.

New hydraulic monitor in 2, 2½-inch sizes

The John W. Stang Corp. has announced a new hydraulic monitor for general hydraulicking applications throughout the construction industry.

Called the Intelli-Giant, the new monitor is recommended by the firm for projects requiring portable, high-pressure hydraulicking.

Due to a design that equalizes all the thrust forces inherent in the



operation of a high-pressure monitor, the operator is able to easily control all the horizontal and vertical movements of the gun, at all working water pressures and volumes, according to the manufacturer. The gun moves in a horizontal arc of 350 degrees and in a vertical arc of 120 degrees.

The Intelli-Giant is produced in manually operated models of 2 and 2½-inch-ID barrel sizes. Fully automatic, hydraulically controlled types, in a broad range of sizes, are planned for later production.

For further information write to John W. Stang Corp., Dept. C&E, 8221 Atlantic Ave., Bell, Calif., or use the card at page 18. Circle No. 56.

This new mast, optional equipment for the Speedstar cable tool drill, has a load capacity of 18,000 pounds.

New mast increases drill-rig capacity

A completely new mast, said to increase the capacity of the Model 71 Speedstar cable tool drill by 50 per cent, has been announced by the Buffalo-Springfield Co.

The new mast is available as optional equipment on the drill. Hook load capacity is 18,000 pounds, as compared to 12,000 pounds for the standard mast.

For further information write to the Buffalo-Springfield Co., division of Koehring Co., Dept. C&E, 1210 Kenton St., Springfield, Ohio, or use the Request Card at page 18. Circle No. 157.

PENGO AUGERS

Save you money 4 ways

PENGO HEAVY-DUTY Twin Helix Augers—14" through 96" hole diam.

1 **BORE FASTER**...put real "teeth" in earth drilling, save wear and tear on your diggers.

2 **STAY ON THE JOB LONGER** ...all wearing parts replaceable in the field; no down-time for shop welding.

3 **COST FAR LESS TO MAINTAIN** ...reversible teeth cost only 90¢ each, pilot bit only $8.00. Parts interchangeable on all PENGO augers you are using...less inventory!

4 **A SIZE AND TYPE FOR EVERY BORING JOB**...Augers and boring heads (for welding to your present auger) available for every make of machine from post hole diggers to largest heavy-duty earth drills. Write for catalog.

PENGO Prope®

—the most satisfactory construction rope available today!

* GREAT STRENGTH (8,200 lbs. for ¾" diameter)
* LIGHT WEIGHT (11 lbs. per 100 ft. ¾" diameter)
* HANDLES AND SPLICES LIKE MANILA in any climate or weather
* WATERPROOF (even salt water); can't mildew or rot. Excellent dielectric properties.

PENGO-Prope is a synthetic rope of special construction available in all popular diameters from 3/16" to 2"; regular construction in sizes smaller than 3/16". Write for specifications, prices.

PETERSEN ENGINEERING COMPANY, INC.
Santa Clara, California
Axminster 6-7712

For more facts, circle No. 360

Winslow
TRUCK SCALES
PIT AND PITLESS TYPES

Capacities: 15, 18, 20, 30, 40, 50, 60 and 70 tons.

For use at temporary and permanent locations, stockpiles, and by bituminous material contractors at the jobsite.

TYPE CS — PITLESS — PORTABLE

Write or phone Dept. B-70 today Phone NOrth 1231

WINSLOW GOVERNMENT STANDARD SCALE WORKS, INC.
25TH & HAYTHORNE TERRE HAUTE, IND.

For more facts, use Request Card at page 18 and circle No. 361

which trailer will do the best job for you?

Says
DRESSER ENGINEERING CO.

"BIRMINGHAM lowbeds beat 'em all"

"I have pulled about every type and kind of trailer," says Owen Garner of Dresser Engineering Company, Tulsa, Oklahoma, "but the BIRMINGHAM 'lowboy' beats them all. The BIRMINGHAM lowbed trailer really does the job better and it sure pulls easier."

The Dresser Engineering Co. does all kinds of heavy construction work — principally erection of gasoline refining plants. Their BIRMINGHAM lowbed shown above is a 40-ton unit used to haul construction materials and equipment.

Write for BIRMINGHAM Trailer Catalog

BIRMINGHAM MANUFACTURING COMPANY, Inc.
55th Street at First Avenue South, Birmingham, Alabama, Phone 595-6183-4-5
P.O. Box 2805 - - - Cable Address BIRMCO
LOWBEDS TOTEM-ALLS PLATFORMS

For more facts, use Request Card at page 18 and circle No. 362

CASTINGS?

That's all we make!

And on hand for immediate delivery are thousands of standard designs such as —

What's more, we have

15,000

patterns from which construction castings can be produced fast.

Our 168 page catalog of Gray and Ductile Iron castings will be sent promptly upon request.

NF

NEENAH FOUNDRY COMPANY
NEENAH • WISCONSIN
Chicago office: 5445 N. Neva Ave., Chicago 31

For more facts, circle No. 363

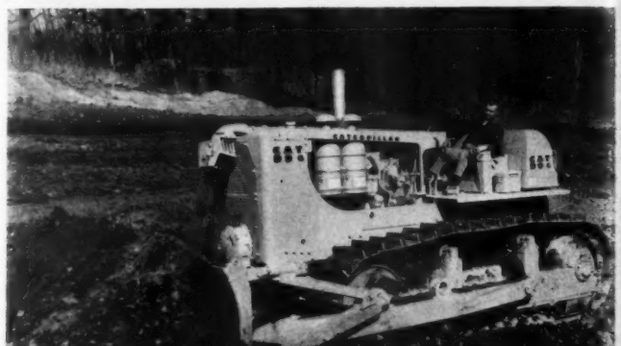
Higher horsepower for improved tractor

Combining a 15 per cent horsepower increase with basic improvements in the power-shift transmission to boost production capability, the new Cat D9 Series G tractor is said to incorporate major advances in power train and final drives and a redesigned track roller frame.

The new tractor's higher horsepower, now 385 flywheel rating, results primarily from a system of controlled turbocharging with aftercooling of intake air. The D9G is the first track-type unit to have such a system, the company reports.

Development of a slip clutch for the fan drive also helps increase usable horsepower by reducing—reportedly by as much as 30 per cent—the power absorbed in driving the engine fan. Three new, hydraulically boosted cable controls are also available for the D9G. All have larger clutch, brake, and drum capacities. Live-powered off an auxiliary drive shaft, all three are said to give faster response because of higher line speeds.

For further information write to Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 13.



TOPS 'EM ALL AS THE NO. 1 THIRST-QUENCHER

IGLOO is first for thirst and should be a regular fixture on every construction job. Have one for about every 6 to 8 workers and get more time spent on the job. Improves employee relations, too. Out of the 23 sizes and models available there's one exactly fitted to your needs. IGLOO portable water coolers have been time-tested and proved on thousands of tough jobs over the world.

Write for catalog. **IGLOO** *Memphis 18, Tenn.*

For more facts, use Request Card at page 18 and circle No. 364

Gasoline-driven heater for hot-mix plants

The Childers gasoline-engine-driven Little Devil is a low-cost, manually operated, self-contained circulating hot-oil heater. The unit operates anywhere without electric power, and is recommended by the manufacturer for hot-mix plants with capacities up to 40 tph and 20,000 gallons of storage.

The unit is said to be especially well suited for county and state highway maintenance applications.

The heater is equipped with a standard pull-rope starter, built-in 90-gallon fuel-oil tank, and a separate (5-gallon) gasoline tank. The Little Devil is insulated with 2 inches of fiberglass covered with metal skin. Specifications include length, 76 inches; height, 76 inches; width, 40 inches; and weight (empty), 2,000 pounds. Circulating oil capacity is 70 gallons.

For further information write to Childers Mfg. Co., Inc., Dept. C&E, 2010 6th St. N. W., Albuquerque, N. Mex., or use the Request Card at page 18. Circle No. 76.

CONTACT FOR ENGLISH FIRM — English company selling to the Building and Civil Engineering trades wishes to take on agencies for contractors' plant and machinery for sale in the United Kingdom. Well established in the trade, own outside sales force selling direct to the user. All replies treated in confidence. Manufacturers interested please write Box No. 524, c/o Contractors and Engineers, 470 Park Avenue South, New York 17, New York.

SITUATIONS WANTED, MALE

For construction, contracting and engineering personnel of every description. Responsible, checkable references.

YORK EMPLOYMENT AGENCY
25 West 14th Street, New York 11, New York
PHONE: ORegon 5-5006

Concrete Paving Supt. Wanted

Straight-of-way highway work as well as city paving. Complete charge of field operations. Salary and bonus based on results. Prefer one with experience in the Mid-West area. State age, salary, experience and give references.

WRITE: Box 525, c/o Contractors and Engineers, 470 Park Avenue South, New York 16, N. Y.

SAFE • SPEEDY • DEPENDABLE

Derricks For every contractor's need —Stiff-Leg, Guy Line, Setter, A-Frame, Pole and Tripod, Roofers' Circle Swing Derricks... hand and/or power operated. Proved performers on every type of job. Safe and dependable.

"PROVED IN SERVICE"

Sasgen.

Hoists Made to fit your requirements—large or small. Complete units, like the Liftamatic, which reaches up to 90 ft., carries 1200 lb. load with electric or gasoline power—or Contractors' Drum Hoist Units, single or double drum, with capacities from 500 to 5500 lb. single line pull. Optional power.

Winches From U. L. approved safety scaffold winches to heavy-duty hand-powered winches that will take from 400 to 40,000 lb. loads, Sasgen has a complete line to handle your job quickly and safely. You can't buy a better winch!

Handled by Leading Equipment Distributors Everywhere

WRITE FOR CATALOG AND PRICES

Sasgen DERRICK COMPANY

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MOBILE OFFICE Units are low in cost . . . Built to your specifications . . . There's a unit to fill your every need.

Because MOBILE OFFICE Units are easy to move from job to job, they enable you to have office, engineering, paymaster and other facilities at every point of your operation.

These units are economical, time saving, rugged and durable. They are self-containing, and are available with air-conditioning, and can be fitted to your specifications.

MOBILE OFFICES are being used by major contractors and other major businesses throughout the United States. In every case they have proven their worth.

Remember, whatever your needs may be, a MOBILE OFFICE Unit can be built to fill your requirements.

If it's Mobile . . . We Build It!

MOBILE OFFICE, INC
Phones: DOrchester 3-1048

Mobile Office, Inc., 7300 Stony Island Ave., Chicago 49, Ill.
For more facts, circle No. 366

Product Literature

To obtain free copies of any of the literature described in this section, circle the designated number on the Request Card at page 18.

Clamshell buckets—a 40-page, well illustrated booklet on the use and maintenance of clamshell buckets. Bulletin No. 2373-RC.

Write to the Blaw-Knox Co., Equipment Division, Dept. C&E, 300 Sixth Ave., Pittsburgh 38, Pa., or use the Request Card that is bound in at page 18. Circle No. 91.

Front-end loaders—a booklet describing the various applications for the Caterpillar three wheel-type and three track-type Traxcavators. Photographs show actual working conditions, and text explains the features of the machine that qualify it for the particular job. Attachments are illustrated, and condensed specifications are given. Form D106.

Write to Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 61.

Crawler cranes—three comprehensive technical portfolios covering construction features and production capabilities of the P&H Models 525, 535, and 550 crawler cranes. Exclusive Harnischfeger design features are discussed. Dimensional drawings, range diagrams, cutaway and application photos, capacity charts.

Write to the Harnischfeger Corp., Dept. C&E, 4445 W. National Ave., Milwaukee 46, Wis., or use the Request Card bound in at page 18. Circle No. 158.

Idler sprockets—a catalog sheet explaining the construction features and giving specifications and prices of Diamond Uni-Mount idler sprockets. The easy assembly of these bearing-equipped sprockets is stressed.

Write to Diamond Chain Co., Inc., Dept. C&E, 402 Kentucky Ave., Indianapolis 7, Ind., or use the Request Card at page 18. Circle No. 74.

Highway-bridge design—a booklet describing 15 ways to reduce the cost of short-span steel bridges. Cross-section drawings and detailed diagrams suggest ways to simplify design and economize on construction of highway spans.

Write to American Institute of Steel Construction, Dept. C&E, 101 Park Ave., New York, N. Y., or use the Request Card at page 18. Circle No. 63.

Concrete finisher float—a product sheet describing and illustrating the Blaw-Knox push-button-control, autoelectric float attachment for high-speed, low-cost concrete finishing. Advantages of the rig's operational features are spelled out. Complete specifications; description of optional equipment. Bulletin FF-100.

Write to Blaw-Knox Co., Construction Equipment Division, Dept. C&E, 300 Sixth Ave., Mattoon, Ill., or use the Request Card at page 18. Circle No. 70.

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Wheel excavator—a color folder illustrating and describing the operation of the Model 2000 wheel excavator, manufactured by Mechanical Excavators, Inc. The conveying system, power plant, and control panel for this giant excavator are described in detail. Specifications and engineering data; cutaway dimensional drawing.

For further information write to Baldwin-Lima-Hamilton Corp., Construction Equipment Division, Dept. C&E, Box L, Lima, Ohio, or use the Request Card that is bound in at page 18. Circle No. 78.

Power tools—a 68-page catalog picturing, describing, and giving specifications of more than 100 Skil power tools for use in a variety of construction and maintenance applications. Includes data on saws, drills, and other units. Indexed.

Write to the Skil Corp., Dept. C&E, 5033 Elston Ave., Chicago 30, Ill., or use the Request Card at page 18. Circle No. 159.

Steam cleaner—a descriptive sheet on the Northeast Vapor Jet cleaner. Two models of this cleaning and degreasing machine are pictured and described, and specifications are given.

Write to Northeast Industries, Inc., Dept. C&E, 282 Greenwood Ave., Midland Park, N. J., or use the Request Card at page 18. Circle No. 160.

Crawler excavator—a well illustrated brochure on the Insley WB crawler-mounted 1¼-1½-cubic-yard excavator. General dimensions, specifications, working ranges, and capacities of the Model WB with backhoe, crane, clamshell, dragline, and shovel attachments are given. Photographs of both upper and lower machinery; operational diagrams; specifications. Catalog No. 192-B.

Write to Insley Mfg. Co., Dept. C&E, P. O. Box 167, Indianapolis, Ind., or use the Request Card at page 18. Circle No. 64.

Roofing specifications—a booklet giving Carey built-up roofing specifications for 1961. Detailed diagrams of various types of roofs, and instructions as to kinds and amounts of material recommended. Includes a handy roof selector guide. Form No. 6477.

Write to The Philip Carey Mfg. Co., Dept. C&E, 320 S. Wayne Ave., Cincinnati 15, Ohio, or use the Request Card at page 18. Circle No. 69.

Central-mix plant—a folder describing the features and operation of the Erie mobile central-mix plant. Pictures of the plant components in transit. General specifications for the entire setup.

Write to Erie Strayer Co., Dept. C&E, P. O. Box 1031, Erie, Pa., or use the Request Card at page 18. Circle No. 174.

Automatic controls—a folder containing information about the S-S line of automatic engine controls, overspeed governors, and speed-sensitive switches. The units are pictured

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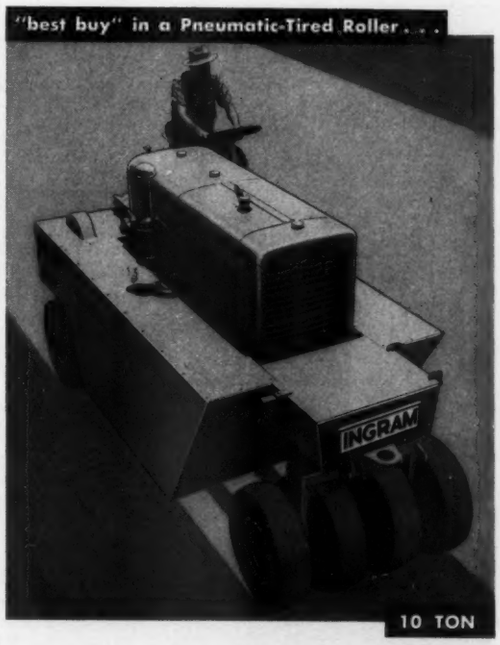

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and their operation described.

Write to Synchro-Start Products, Inc., Dept. C&E, 8151 N. Ridgeway Ave., Skokie, Ill., or use the Request Card at page 18. Circle No. 68.

Road widener—a bulletin devoted to the B-G Model SJ-50 road widener and shoulder paver. Exclusive features of the rig are described and illustrated, as well as its application in a variety of paving operations.

Write to the Barber-Greene Co., Dept. C&E, 400 N. Highland Ave., Aurora, Ill., or use the Request Card at page 18. Circle No. 161.

Versatile dozer blade—a specification sheet on the Ulrich Model 6H Varidozer blade, hinged at the center for use in straight, angle, "U", or tilt positions. Photographs illustrate applications of the blade, and specifications are given for blades to work with Caterpillar D6 wide-gage or standard-gage tractors. Form No. 1287.

Write to Ulrich Mfg. Co., Dept. C&E, Roanoke, Ill., or use the Request Card at page 18. Circle No. 71.

Lightweight concrete aggregate—a data catalog providing detailed specifications and instructions for use of perlite aggregate for roof decks, granular-fill insulation, and other uses. Design features shown in cutaway drawings. Property tables.

Write to the Perlite Institute, Inc., Dept. C&E, 45 W. 45th St., New York 36, N. Y., or use the Request Card at page 18. Circle No. 162.

Pneumatic compactor—a specification sheet on the Hyster Model C500A self-propelled pneumatic compactor. Principal operational features are discussed, and a chart spells out inflation pressure vs. ground-contact pressure. Complete specifications. Form No. 1811.

Write to the Hyster Co., Tractor Equipment Division, Dept. C&E, Box 328, Peoria, Ill., or use the Request Card that is bound in at page 18. Circle No. 163.

Dam case studies—a 48-page booklet containing 25 reports on major dam projects on which Pozzolith has been used as a concrete additive. Advantages of its use are described. Generously illustrated with project photographs. Bulletin MBR-P-3.

Write to The Master Builders Co., Dept. C&E, 2490 Lee Blvd., Cleveland, Ohio, or use the Request Card at page 18. Circle No. 164.

Materials unloader—a brochure describing features and giving detailed specifications of five Side-O-Matic boom unloaders for concrete block and other building materials. A self-contained unit for installation on truck or trailer is also described. Operational photographs; diagrams. Bulletin B-1-61.

Write to Side-O-Matic Unloader Corp., Dept. C&E, P. O. Box 1561, York, Pa., or use the Request Card at page 18. Circle No. 60.

Parts plan—a booklet describing the Parts Assembly Exchange Program offered by Caterpillar dealers. Describes the working of the plan and quotes testimonials from contractors, equipment superintendents, and shop foremen. Form D115.

Write to the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 165.

Dust control—an informative bulletin entitled "Eliminating Dust Around Construction." Describes use of calcium chloride in a variety of applications to solve the dust problem on projects. Instructions on how to use; application charts.

Write to the Calcium Chloride Institute, Dept. C&E, 909 Ring Bldg., Washington 6, D. C., or use the Request Card at page 18. Circle No. 166.

Pneumatic compactor—a well illustrated brochure describing the Ampac-4 heavy-duty pneumatic compactor. Both design and operational features are explained in detail. Cutaway drawings, tables, specifications. Bulletin No. 410.

Write to the American-Marietta Co., Construction Equipment Division, Dept. C&E, 13050 Blue Mound Road, Milwaukee 1, Wis., or use the Request Card at page 18. Circle No. 167.

Concrete-curing compound—a folder describing Horncure concrete-curing compound, with complete specifications on the 100 per cent resin-base type, white-pigmented type, and wax-resin-base types. Functions and advantages of each are fully covered. Form 1415.

Write to A. C. Horn Cos., division of Sun Chemical Corp., Dept. C&E, 2133 85th St., North Bergen, N. J., or use the Request Card that is bound in at page 18 of this issue. Circle No. 168.

Motor graders—a bulletin containing detailed information on Huber-Warco Model 6-D and Model 7-D graders with torque converters and power-shift transmissions. Construction features are illustrated, and operation of the rigs is described by means of photographs and text. Information on optional attachments. Bulletin No. HWG 521.

Write to Huber-Warco Co., Dept. C&E, Box 501, Marion, Ohio, or use the Request Card at page 18. Circle No. 66.

Stud drivers—a brochure describing Remington stud drivers and accessories. Diagrams detail the construction of these tools. Power Guide studs are illustrated and their dimensions given.

Write to the Remington Arms Co., Inc., Dept. C&E, 939 Barnum Ave., Bridgeport 2, Conn., or use the Request Card at page 18. Circle No. 169.

Concrete-testing machines—a 6-page illustrated booklet on the Soiltest line of concrete-testing machines. Includes photographs and descriptions of portable compression testers and accessories. Specifications given.

Write to Soiltest, Inc., Dept. C&E, 4711 W. North Ave., Chicago 39, Ill., or use the Request Card that is bound in at page 18 of this issue. Circle No. 170.

Built-up roofing—a comprehensive, 52-page manual devoted to built-up roofing. Complete installation data on a variety of roof types; specifications. Simplified illustrations and tables for quick selection of materials for the type of roofing desired.

For further information write to Barrett Division, Allied Chemical Corp., Dept. C&E, 40 Rector St., New York 6, N. Y., or use the Request Card at page 18. Circle No. 82.

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Pulling system—an illustrated booklet describing the OTC pulling system and how it can solve everyday problems of wheel and axle pulling and installing in maintenance shops. The company's four basic pulling tools are described. Booklet No. PS-1.

Write to the Owatonna Tool Co., Dept. C&E, 381 Cedar St., Owatonna, Minn., or use the Request Card at page 18. Circle No. 171.

Polyethylene film resin—a data sheet describing Monsanto MPE 706X polyethylene film resin and setting forth properties of tarpaulin, vapor-barrier, and other types of film made from this product. Results of strength and other properties tests are given. Diagrams.

For further information write to Plastics Division, Monsanto Chemical Co., Dept. C&E, Springfield 2, Mass., or use the Request Card at page 18. Circle No. 81.

Blasting devices—a bulletin describing Austin ACP primers, aluminum tamping poles, and ATP tamping plugs. Explains why the company's six primers are safer and easier to use with fertilizer-grade ammonium nitrates. Information about sizes, weights, and shipping. Form L-4465A.

For further information write to Austin Powder Co., Dept. C&E, 450 Rockefeller Bldg., Cleveland 13, Ohio, or use the Request Card at page 18. Circle No. 88.

Material-handling rigs—a series of loose-leaf sheets containing condensed descriptions of the Econmobile line of job-site material-handling vehicles. Sheets on the Models 600 and 620 high-lift rigs are illustrated with a photograph and dimensional drawings showing operational features and attachments. Specifications.

Write to the American Road Equipment Co., Dept. C&E, 4201 N. 26th St., Omaha, Nebr., or use the Request Card at page 18. Circle No. 172.

Core drill—a specification sheet illustrating and describing the Acker portable, gasoline-powered Ambassador core drill. Construction features are explained in detail, and photographs illustrate applications of the tool. Bulletin 27-G.

Write to Acker Drill Co., Inc., Dept. C&E, P. O. Box 830, Scranton 2, Pa., or use the Request Card at page 18. Circle No. 72.

Stringer design—a booklet describing the design of composite stringers by electronic digital computations on a contractual basis. A case history on the design of stringers used in two elevated highway structures is presented. Equational description of the problem; description of the computer program that provided the printed solution.

For further information write to The Service Bureau Corp., a subsidiary of IBM, Dept. C&E, 425 Park Ave., New York 22, N. Y., or use the Request Card at page 18. Circle No. 86.

Spray lubricant—a loose-leaf sheet describing the qualities of and applications recommended for Nu-Aero heavy-duty lubricant for chain drives, wire rope, leaf springs, etc. Text emphasizes the easy application of this product from handy spray cans.

Write to Pressure Products Co., Dept. C&E, 845 Lincoln Ave., West Chester, Pa., or use the Request Card at page 18. Circle No. 67.

Welding helmets—a bulletin describing Fibre-Metal's line of helmets with the new 3-C headgear. Construction details of these headpieces illustrated and described; optional equipment listed. Bulletin No. 73.

For further information write to The Fibre-Metal Products Co., Dept. C&E, Fifth and Tilghman Sts., Chester, Pa., or use the Request Card at page 18. Circle No. 83.

Drill bits—a catalog covering Vascoloy-Ramet's line of carbide-tipped percussion bits for all types of rock drilling, quarrying, and other operations. Cutaway drawings illustrate the bits and their design features. Specifications; ordering information. Catalog No. VR-500.

Write to Vascoloy-Ramet Corp., Dept. C&E, 800 Market St., Waukegan, Ill., or use the Request Card at page 18. Circle No. 65.

Hydraulic truck hoist—a sheet giving specifications, features, and capacities of the Daybrook Series 7AF hoist for contractors' trucks. Illustrated. Form 7AF-KB.

Write to Young Spring & Wire Corp., Equipment Division, Dept. C&E, 500 Lehman Ave., Bowling Green, Ohio, or use the Request Card at page 18. Circle No. 73.

Clamps, hose fittings—a new 24-page catalog illustrating and describing the complete line of Band-It pressure clamps, hose fittings, couplers, etc. Specifications, shipping weights, and list prices are given. Form B-5.

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Product literature in July advertisements

The following free catalogs, bulletins, and other specific literature are offered by manufacturers advertising in this issue and whose advertisements were in our hands by June 15. To obtain any item, circle the designated number on the Request Card at page 18.

Subsoil detector—Manual E-63 containing complete operating data on the Model 274M Michimho Electro-Ground for determining location and composition of subsoil layers, gravel deposits, etc. Associated Research, Inc. Circle No. 101 on Request Card.

Diamond-blade sawing—Report No. 101 containing detailed information and case histories from state highway officials and contractors on diamond-blade sawing of concrete pavement. Engelhard Hanovia, Inc. Circle No. 107 on Request Card.

Asphalt plants—Bulletin AP-26 on Cedarapids portable G-unit plants and Bulletin AP-27 on stationary stack-up H-unit plants. Iowa Mfg. Co. Circle No. 122 on Request Card.

Pipe and couplings—Bulletin No. 59 giving details on Naylor Spiralweld pipe and Naylor Wedgelock couplings for simplified pipeline construction. Circle No. 119 on Request Card.

Wire rope—Catalog 493, a reference manual of recommendations for the use of Bethlehem wire rope on bulldozers, shovels, derricks, cranes, and other equipment; also data on grades, cores, and lays of wire rope, fittings, etc. Circle No. 113 on Request Card.

Pneumatic roller—Data bulletin No. 434-A on the Galion 9-wheel pneumatic-tire roller with triple-point steering suspension. Circle No. 111 on Request Card.

Vibrating screeds—Bulletin No. 610-9 on new Stow vibrating screeds with adjustable crown. Circle No. 116 on Request Card.

Two-way radio—A phonograph record, made on the job, illustrating the advantages of Motrac radio with Extender ignition-noise-suppression operation. Motorola. Circle No. 120 on Request Card.

Hardfacing—Blowup of hardfacing rod and wire application chart, also copy of "Practical Guide to Hardfacing." Victor Equipment Co. Circle No. 109 on Request Card.

Trailers—Folder containing pictures and facts about Fruehauf's 1961 line of construction trailers. Circle No. 121 on Request Card.

Water coolers—Catalog illustrating and listing the features of Igloo's 23 sizes and models of portable water coolers. Circle No. 105 on Request Card.

Tractor-loader—Data on the Model H-90B Payloader and allied equipment. The Frank G. Hough Co. Circle No. 100 on Request Card.

Car shakers—A condensed catalog of Syntron vibratory equipment, including car shakers, feeders, screens, and hammers. Circle No. 112 on Request Card.

Castings—A 168-page catalog of gray and ductile iron castings for various construction installations. Neenah Foundry Co. Circle No. 124 on Request Card.

Rotary compressors—Bulletins E-263 and 268 describing Davey rotary compressors featuring Perma-Vane blades. Circle No. 110 on Request Card.

Pumps—Bulletin C-09 on Marlow self-priming pumps, also the Mud-Hog diaphragm pump. Circle No. 115 on Request Card.

Crawler-mounted hoe—Descriptive literature X-303 on the P&H 1½-yard hoe, available in standard, long-crawler, and wide-long-crawler models. Harnischfeger Corp. Circle No. 106 on Request Card.

Forms and hardware—A catalog describing the complete line of Symons forms and form hardware. Circle No. 123 on Request Card.

Tar kettles—Catalog containing descriptive information and prices on the Standard Steel line of tar kettles, other asphalt road maintenance equipment. Circle No. 102 on Request Card.

Hoists and pullers—Catalog describing the CM line of hoists and pullers for various lifting operations. Chisholm-Moore Hoist Division, Columbus McKinnon Corp. Circle No. 103 on Request Card.

Steel plate—Booklet describing qualities and uses of United States Steel AmBridge sectional plate for culverts. American Bridge Division. Circle No. 108 on Request Card.

Wire rope, chain fittings—Catalog giving details on 2,000 types and sizes of Lebus forged fittings for wire rope and chain. Crosby-Laughlin. Circle No. 117 on Request Card.

Pneumatic pumps—Catalog describes Layton line of pneumatic pumps, including diaphragm models. Circle No. 135 on Request Card.

Buckets—A catalog giving details on Williams clamshell and dragline buckets for a variety of applications. Circle No. 147 on Request Card.

Steel piling—Catalog CE-7 on L. B. Foster piling for numerous applications. Circle No. 104 on Request Card.

Trencher—Descriptive literature on the Speicher tandem-traction trencher, a heavy-duty unit on rubber-tire wheels. Anchor Sales Corp. Circle No. 145 on Request Card.

(Continued on page 120)

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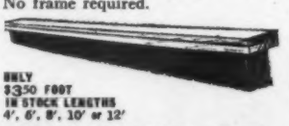

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Product Literature in July Advertisements

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Diamond bits—Bulletin No. 10 illustrating and describing the Acker line of diamond bits. Circle No. 99 on Request Card.

Climbing crane—Literature on the Concretor-Linden climbing crane recommended for a variety of building jobs. B. M. Heede, Inc. Circle No. 146 on Request Card.

Lubricants—Free trial samples of Whitmore open-chain lubricant and antifriction high or low-density composition for roller, ball, and sleeve bearings. Circle No. 144 on Request Card.

Trencher—A bulletin and price information on the Century Trenchit with vertical boom, a unit towed behind a car or pickup truck. Circle No. 143 on Request Card.

Trash pumps—Catalog PT-1 on 3 and 4-inch PosiJector self-priming, centrifugal trash pumps. The Jaeger Machine Co. Circle No. 137 on Request Card.

Concrete plants—Bulletin No. 61-22R and Data Book 261 on Heltzel mobile paving, mobile self-erect ready-mix, and mobile central-mix plants. Circle No. 148 on Request Card.

Hose, other rubber products—A catalog illustrating and describing the complete line of Continental contractors' hose, fittings, boots, and clothing. Circle No. 139 on Request Card.

Concrete saws—Literature and prices on Hoffman diamond-segmented circular saws for cutting concrete, granite, etc. Circle No. 136 on Request Card.

Pumps—Comprehensive specifications, performance curves, and other information about Barnes self-priming, centrifugal, contractor pumps. Circle No. 134 on Request Card.

Trailers—A catalog on the Transport Trailers line of construction trailers, including low-bed, gooseneck, and tilt-type models. Circle No. 140 on Request Card.

Bearings—Illustrated catalog on Monmouth aluminum engine bearings. Circle No. 138 on Request Card.

Derricks, hoists, winches—A catalog and price information on the complete line of Sasgen derricks, hoists, and winches. Circle No. 141 on Request Card.

Compactors—General catalog No. 621 on Barco Rammers for soil compaction and bulletin on "Soil Compaction Cost Data." Circle No. 152 on Request Card.

Power plants—A folder describing Katolight portable power plants. Circle No. 142 on Request Card.

Wire rope—Handbook of "Tuffy Tips" on abuses and correct uses of wire rope and slings. Union Wire Rope. Circle No. 114 on Request Card.

Structural engineer appointed by WRI

■ Charles P. Weisz was recently named to the new post of structural engineer for the Wire Reinforcement Institute, Washington, D. C. He will be available on behalf of the wire-reinforcement industry to designers, engineers, and consultants in the U. S. and Canada for assistance on designs employing welded-wire fabric.

For the past nine years, Weisz has been in charge of plan preparation for Hazelet & Erdal, Cincinnati, Ohio, consulting engineers.

Yuba Erectors appoints new sales manager

■ W. E. Dreusike has been named sales manager of Yuba Erectors, Emeryville, Calif., a structural-steel fabrication and erection division of Yuba Consolidated Industries, Inc., San Francisco.

Dreusike was previously northern California sales vice president of Pacific Iron & Steel of Los Angeles.

ASTM publication list

■ The American Society for Testing Materials, Philadelphia, Pa., has released its 1961 list of available publications. All phases of the materials are covered, and their evaluations are ranged by titles and subject.

Among the 300 items described, of which are new and not previously listed, are the symposiums, manuals, special publications, indexes, compilation of standards, charts, reference photographs, and reports that have been published by the society through the years. An order blank is bound into the catalog.

The list of publications is available free from the ASTM, 1916 Race St., Philadelphia 3, Pa.

McKean relocates offices

■ McKean Construction Co., Salt Lake City, Utah, has moved to new quarters at 1209 Wilmington Ave., Sugarhouse, in Salt Lake City.

Ingersoll-Rand acquires

■ Ingersoll-Rand Co., New York, N. Y., recently acquired the Aldrich Pump Co., Allentown, Pa. Aldrich will be operated as a wholly owned subsidiary.

Robert H. Johnson, chairman and chief executive officer of Ingersoll-Rand, was elected president of the new subsidiary. Other officers elected include: Carl H. Vaupel, vice president and general manager; E. Parish, vice president; and R. Kuntz, secretary and treasurer. The board of directors of Aldrich is composed of these officers; L. C. Hopton and Herbert Cresswell, president and vice president, respectively, of Ingersoll-Rand; and Alfred Steel.

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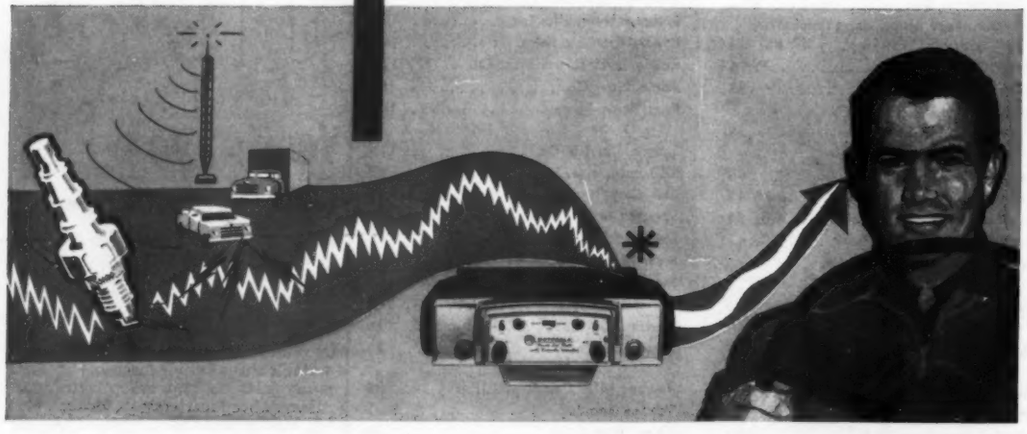

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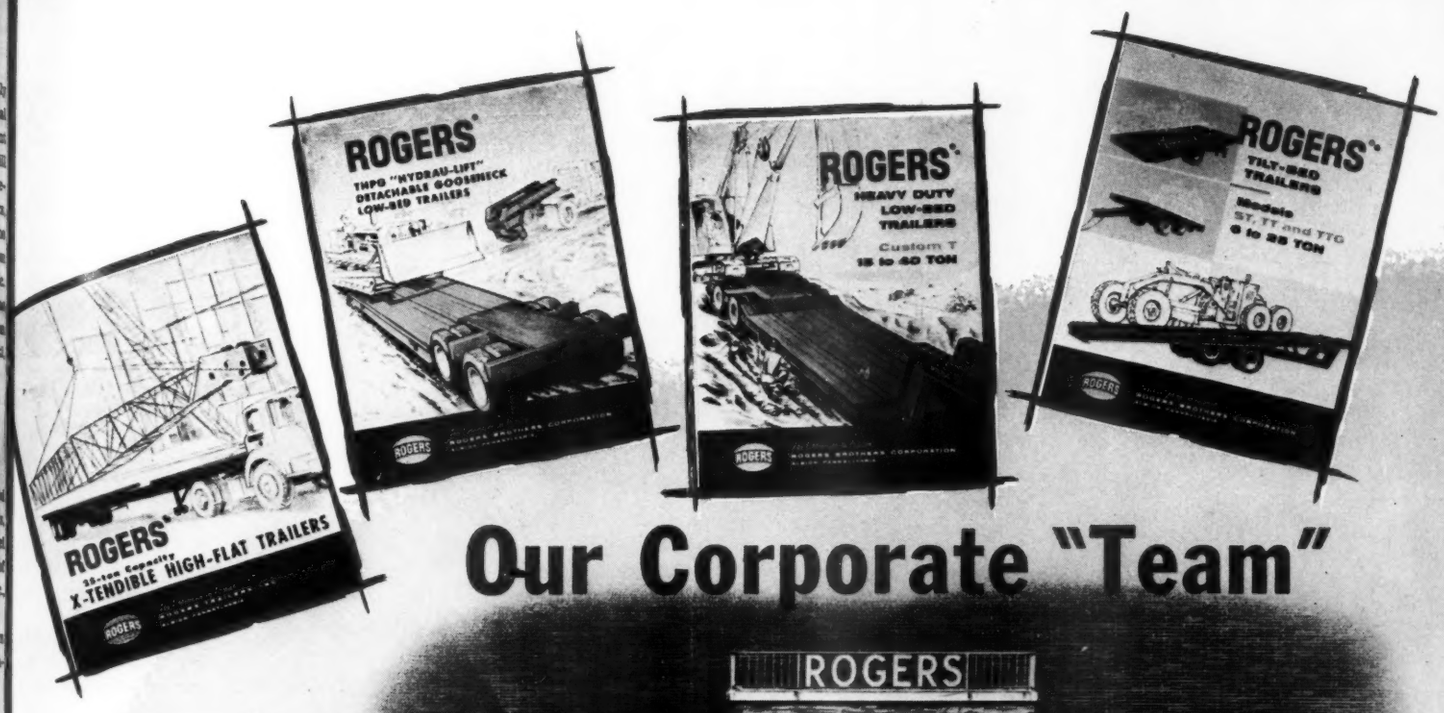

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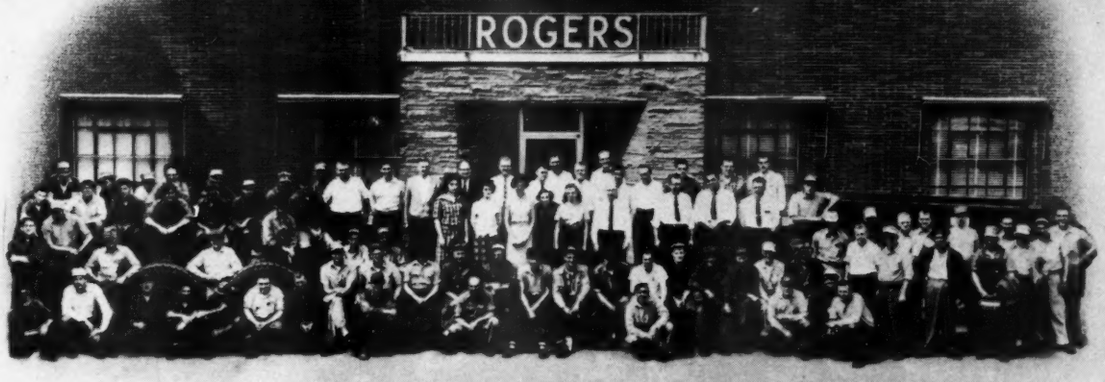

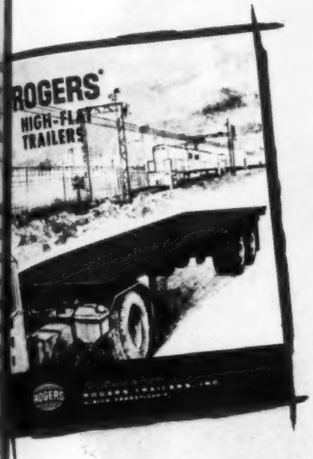

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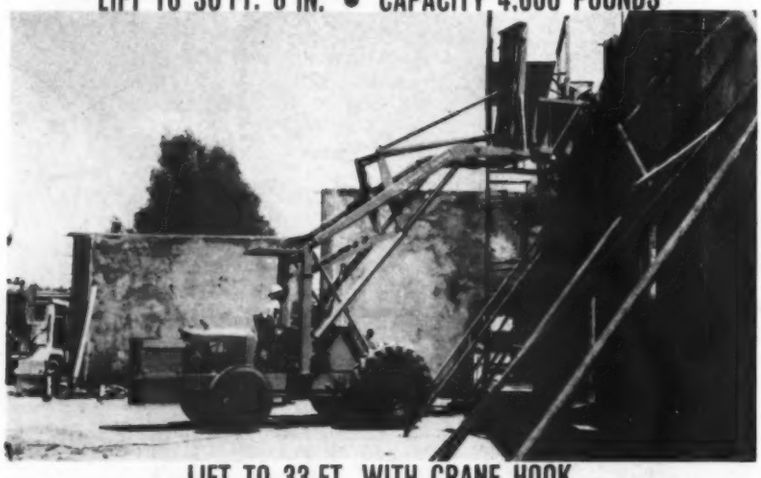

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